Volume 72 Number 8

DEPARTMENT OF COMMERCE
[illegible], Secretary
[illegible] W. Reichelderfer, Chief

MONTHLY WEATHER REVIEW

AUGUST 1944

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CORRECTION

Monthly Weather Review, January 1942, vol. 70, page 5: In footnote 10, the volume number "3" should be "36".

MONTHLY WEATHER REVIEW

Editor, EDGAR W. WOOLARD

VOL. 72, No. 8
W. B. No. 1418

AUGUST 1944

CLOSED OCTOBER 5, 1944
ISSUED NOVEMBER 1, 1944

METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR AUGUST 1944

[Climate and Crop Weather Division, J. B. KINCER in charge]

AEROLOGICAL OBSERVATIONS

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees Centigrade, and relative humidities in percent, obtained by radiosondes during August 1944*

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Albany, N. Y. (86 m.)				Albuquerque, N. Mex. (1,620 m.)				Apalachicola, Fla. (5 m.)				Atlanta, Ga. (300 m.)				Big Springs, Tex. (774 m.)				Bismarck, N. Dak. (505 m.)				Boise, Idaho (868 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relatibe humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,005	18.9	85	31	838	24.8	40	31	1,017	26.4	84	27	983	23.6	81	30	925	28.5	47	30	953	19.4	71	29	912	23.7	32
500	31	958	20.1	66	----	----	----	----	31	961	24.9	80	27	960	23.7	73	----	----	----	----	----	----	----	----	----	----	----	----
1,000	31	904	17.3	66	----	----	----	----	31	908	21.9	75	27	907	20.7	74	30	902	27.4	46	30	899	18.7	57	29	899	25.3	24
1,500	31	853	13.6	69	----	----	----	----	31	857	18.8	70	27	856	17.4	71	30	852	23.7	48	30	808	15.4	61	29	849	21.7	24
2,000	31	802	10.1	69	31	802	22.8	38	31	808	15.8	63	27	807	14.4	67	30	804	19.8	53	30	799	12.1	61	29	800	17.5	26
2,500	31	756	7.4	59	31	757	19.1	40	31	762	13.0	61	27	761	11.4	64	30	758	16.0	55	30	753	9.0	58	29	754	13.3	30
3,000	31	711	4.6	54	31	714	15.3	41	31	718	10.0	61	27	716	8.7	62	30	715	12.5	54	30	708	5.9	57	29	711	9.2	32
4,000	31	628	− 0.8	45	31	634	7.4	50	31	636	4.1	63	27	634	3.2	57	30	634	5.6	55	30	626	− 0.4	50	29	629	1.2	39
5,000	31	554	− 6.4	42	31	560	− 0.4	59	31	562	− 1.3	55	27	560	− 2.1	52	30	560	− 1.1	50	30	552	− 7.2	45	29	554	− 6.0	36
6,000	31	486	−12.2	33	31	494	− 7.3	59	30	495	− 6.9	49	26	493	− 7.6	47	29	494	− 7.1	43	30	485	−13.4	35	29	488	−12.6	30
7,000	30	426	−18.7	36	31	434	−13.2	55	30	435	−13.1	46	25	433	−13.8	51	29	434	−13.3	40	28	424	−20.7	34	29	427	−19.8	28
8,000	30	372	−25.8	46	31	380	−20.0	51	30	380	−19.8	50	25	379	−20.3	49	29	379	−20.0	34	28	369	−27.9	----	29	372	−27.4	----
9,000	29	323	−32.7	----	30	331	−27.2	52	30	331	−27.1	48	23	330	−27.8	53	29	331	−27.2	----	28	320	−35.2	----	28	322	−35.1	----
10,000	28	280	−40.0	----	30	287	−34.6	45	30	288	−35.0	52	23	287	−35.4	54	28	287	−34.7	----	28	278	−42.3	----	27	280	−42.1	----
11,000	28	242	−45.7	----	30	248	−42.1	----	30	249	−43.4	----	23	248	−43.3	----	27	248	−42.9	----	28	239	−48.2	----	25	241	−47.2	----
12,000	27	208	−51.3	----	30	214	−49.0	----	29	214	−51.5	----	23	213	−51.1	----	25	213	−50.9	----	26	205	−51.2	----	25	207	−51.1	----
13,000	26	178	−55.9	----	26	184	−55.7	----	25	183	−58.9	----	21	183	−57.5	----	23	183	−58.0	----	24	175	−54.2	----	18	177	−53.4	----
14,000	22	152	−59.1	----	23	156	−62.0	----	9	157	−62.7	----	16	156	−61.4	----	15	156	−63.5	----	20	150	−56.0	----	17	152	−56.3	----
15,000	12	129	−60.4	----	15	133	−65.3	----	----	----	----	----	----	----	----	----	8	132	−68.0	----	17	128	−56.9	----	10	129	−59.6	----
16,000	----	----	----	----	7	113	−67.5	----	----	----	----	----	----	----	----	----	----	----	----	----	12	109	−57.0	----	----	----	----	----
17,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7	93	−56.4	----	----	----	----	----

Altitude (meters) M. S. l.	Brownsville, Tex. (6 m.)				Buffalo, N. Y. (221 m.)				Caribou, Maine (193 m.)				Charleston, S. C. (14 m.)				Denver, Colo. (1,616 m.)				Dodge City, Kans. (787 m.)				El Paso, Tex. (1,195 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,012	27.6	84	30	990	20.0	76	31	990	17.0	80	30	1,016	23.5	92	31	838	22.4	44	29	923	23.1	70	30	880	26.5	50
500	31	957	24.4	84	30	959	20.6	62	31	955	18.1	66	30	961	22.7	85	----	----	----	----	----	----	----	----	----	----	----	----
1,000	31	904	21.7	71	30	905	17.6	61	31	902	15.0	67	30	908	20.3	80	----	----	----	----	29	901	24.2	59	----	----	----	----
1,500	31	853	19.3	59	30	853	14.0	66	31	850	11.5	69	30	857	17.6	78	----	----	----	----	29	852	21.7	53	30	851	25.0	47
2,000	31	804	16.6	52	30	804	10.9	66	31	800	8.4	68	30	808	14.9	78	31	802	22.5	33	29	803	18.7	49	30	804	21.8	48
2,500	31	758	14.0	48	30	756	8.0	57	31	753	5.5	64	30	761	12.2	73	31	756	18.9	34	29	757	15.4	46	30	758	18.0	52
3,000	31	714	11.1	45	30	712	5.4	50	31	708	2.7	56	30	717	9.6	69	31	713	14.8	38	29	714	11.6	47	30	715	14.3	54
4,000	30	633	5.1	42	30	629	−0.5	44	31	625	−3.2	52	29	635	4.3	55	31	633	6.4	50	29	632	4.1	50	30	634	7.1	57
5,000	30	559	0.9	39	30	555	−5.8	38	30	550	−8.5	44	28	561	−0.9	63	31	560	−1.8	64	29	558	−2.6	50	30	561	−.3	60
6,000	30	493	−6.8	37	30	487	−11.7	36	30	493	−14.7	47	28	495	−6.6	62	31	493	−9.1	61	29	492	−9.2	47	30	494	−6.6	62
7,000	30	433	−13.0	32	30	427	−18.3	39	30	423	−21.1	42	25	435	−12.7	58	30	433	−15.7	53	29	431	−14.2	39	30	435	−12.6	51
8,000	30	379	−19.4	33	30	373	−25.3	44	29	368	−28.4	----	23	381	−19.4	52	28	378	−22.4	44	29	377	−22.3	39	30	380	−19.3	40
9,000	30	330	−26.8	----	30	323	−32.6	----	28	319	−35.8	----	23	332	−26.5	50	26	329	−29.5	----	28	328	−29.9	----	30	331	−26.6	----
10,000	30	287	−34.6	----	30	281	−39.5	----	27	276	−42.7	----	21	288	−33.8	53	24	285	−37.0	----	27	285	−37.5	----	30	288	−34.3	----
11,000	30	248	−42.6	----	29	242	−45.5	----	27	238	−48.4	----	18	250	−41.0	----	23	246	−44.0	----	26	246	−44.9	----	30	249	−42.0	----
12,000	29	213	−50.4	----	27	208	−51.5	----	27	204	−52.1	----	17	215	−48.4	----	21	212	−50.8	----	24	211	−51.3	----	30	214	−49.6	----
13,000	25	183	−57.9	----	24	178	−56.1	----	26	174	−54.2	----	13	184	−54.9	----	19	181	−56.6	----	24	181	−57.1	----	24	184	−57.2	----
14,000	23	155	−65.1	----	20	152	−58.7	----	25	150	−57.1	----	10	158	−60.2	----	17	154	−61.2	----	20	154	−62.6	----	19	157	−62.8	----
15,000	13	132	−69.7	----	11	129	−60.0	----	22	127	−57.3	----	----	----	----	----	7	131	−62.9	----	13	131	−66.3	----	8	134	−67.8	----
16,000	----	----	----	----	----	----	----	----	14	108	−57.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
17,000	----	----	----	----	----	----	----	----	9	92	−55.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
18,000	----	----	----	----	----	----	----	----	6	79	−54.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

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TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees Centigrade, and relative humidities in percent, obtained by radiosondes during August 1944*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

Altitude (meters) m. s. l.	Ely, Nev.[1] (1,908 m.)				Glasgow, Mont. (648 m.)				Great Falls, Mont. (1,128 m.)				Greensboro, N. C. (273 m.)				Hatteras, N. C. (3 m.)				Huntington, W. Va. (172 m.)				International Falls, Minn. (343 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	30	809	21.5	18	31	937	19.2	60	31	886	18.5	48	30	986	21.2	84	26	1,018	23.6	82	31	997	20.9	81	31	972	16.5	81
500													30	960	21.6	75	26	962	21.6	72	31	960	22.2	65	31	954	17.6	70
1,000					31	900	18.5	49					30	907	18.9	69	26	908	18.3	70	31	906	19.4	63	31	900	15.2	66
1,500					31	848	14.9	52	31	848	16.7	43	30	856	15.8	70	26	857	15.5	61	31	855	15.7	67	31	848	11.7	68
2,000	30	801	23.0	18	31	799	11.2	58	31	799	13.0	46	40	806	12.8	68	26	807	13.1	54	31	806	12.2	68	31	799	8.4	67
2,500	30	756	21.0	18	31	752	7.8	58	31	753	9.2	52	30	759	10.2	62	26	760	11.1	50	31	758	9.3	65	31	751	5.7	59
3,000	30	713	16.8	18	31	708	4.2	59	31	708	5.3	57	30	715	7.6	58	26	716	8.5	48	31	714	7.0	55	31	707	3.0	53
4,000	30	632	7.7	18	31	625	−2.4	54	31	626	−1.8	56	30	633	2.3	50	26	634	3.0	48	31	632	1.9	48	31	624	−2.6	41
5,000	30	560	−1.2	20	31	551	−8.8	48	31	551	−8.3	54	30	559	−3.0	49	25	560	−2.4	45	31	558	−3.3	45	31	549	−8.7	42
6,000	28	492	−8.8	21	31	483	−15.3	45	31	484	−15.1	51	30	492	−8.6	46	25	492	−8.0	42	31	491	−9.2	47	30	482	−15.5	44
7,000	28	432	−15.6	20	29	423	−22.6	48	31	423	−22.2	52	30	432	−14.8	47	25	433	−14.1	38	31	431	−15.4	50	30	421	−22.2	52
8,000	28	377	−23.2	20	29	368	−29.9	40	31	368	−29.9	45	29	377	−22.0	45	24	378	−21.2	----	31	376	−22.0	48	30	366	−29.2	46
9,000	27	328	−30.9	22	29	318	−37.1	----	31	319	−37.5	----	28	328	−29.3	47	24	329	−29.0	----	31	327	−29.2	47	29	318	−35.6	----
10,000	26	284	−38.6	24	29	275	−44.0	----	31	276	−44.9	----	28	285	−37.3	----	23	286	−36.7	----	31	284	−36.9	54	28	275	−43.3	----
11,000	26	245	−45.2	----	29	237	−49.7	----	31	237	−50.5	----	28	246	−45.3	----	23	246	−44.8	----	31	246	−44.8	----	28	237	−48.2	----
12,000	25	211	−51.4	----	28	203	−51.4	----	29	203	−51.2	----	28	211	−53.0	----	23	212	−52.7	----	31	211	−52.1	----	23	203	−51.0	----
13,000	22	180	−56.7	----	24	174	−53.3	----	27	174	−52.4	----	26	181	−59.0	----	21	181	−59.5	----	30	180	−58.1	----	20	174	−52.8	----
14,000	18	154	−61.7	----	20	149	−54.0	----	20	149	−54.6	----	25	154	−63.6	----	13	154	−64.6	----	25	154	−61.6	----	14	148	−54.7	----
15,000	9	131	−65.0	----	17	127	−56.5	----	10	127	−56.1	----	16	131	−66.0	----	----	----	----	----	15	131	−65.8	----	9	128	−56.4	----
16,000	----	----	----	----	11	109	−56.9	----	----	----	----	----	5	111	−65.6	----	----	----	----	----	5	112	−67.2	----	6	109	−57.4	----

Altitude (meters) m. s. l.	Jackson, Miss. (97 m.)				Joliet, Ill. (178 m.)				Lake Charles, La. (5 m.)				Lakehurst, N. J.[1] (39 m.)				Little Rock, Ark. (79 m.)				Louisville, Ky. (165 m.)				Mazatlan, Mexico (80 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	30	1,004	25.2	86	31	994	20.4	80	31	1,014	26.0	90	30	1,013	21.4	74	31	1,005	25.8	78	31	[illegible]	22.8	78	29	1,002	28.0	81
500	30	958	24.7	77	31	958	22.3	64	31	959	24.4	78	30	960	21.5	61	31	958	25.4	69	31	[illegible]	23.5	63	29	956	25.0	81
1,000	30	906	21.6	75	31	904	18.8	65	31	906	21.8	70	30	907	18.7	58	31	905	22.4	68	31	906	20.0	65	29	903	22.5	76
1,500	30	855	18.3	74	31	854	15.2	66	31	856	18.9	65	30	855	15.5	55	31	855	19.2	65	31	855	16.4	71	29	853	20.2	71
2,000	30	806	15.3	72	31	804	12.3	56	31	806	15.9	61	30	806	12.5	49	31	806	16.4	58	31	806	13.4	69	29	804	17.7	66
2,500	30	760	12.4	67	31	757	9.8	50	30	760	13.1	55	30	759	9.5	48	31	760	13.5	55	31	759	10.6	64	29	758	15.1	65
3,000	30	716	9.6	61	31	713	7.1	41	30	716	10.2	55	30	714	6.7	47	31	716	10.4	52	31	715	7.9	58	29	715	12.2	67
4,000	30	634	3.3	61	31	630	1.5	36	30	635	4.0	54	30	632	0.9	40	30	634	4.1	51	29	633	2.5	54	28	634	5.8	72
5,000	30	560	−2.5	53	31	556	−4.0	35	30	561	−1.5	46	30	558	−4.7	36	30	560	−1.7	50	29	559	−2.9	50	28	560	−.7	77
6,000	29	492	−8.5	46	31	489	−10.0	35	30	494	−7.0	39	30	490	−10.3	36	30	494	−7.3	50	29	492	−8.5	41	27	494	−6.4	71
7,000	27	432	−14.4	41	31	429	−16.5	35	30	434	−13.1	34	30	430	−16.3	36	30	433	−13.5	50	29	432	−14.5	39	27	434	−12.2	64
8,000	26	378	−21.1	46	31	375	−23.4	----	30	380	−19.8	38	29	375	−23.2	----	30	379	−20.2	42	29	377	−21.5	35	27	380	−18.8	54
9,000	25	329	−28.4	----	30	326	−30.4	----	30	330	−27.0	----	28	326	−30.7	----	30	330	−27.0	40	28	328	−28.9	46	25	331	−25.8	58
10,000	25	286	−36.3	----	30	283	−37.6	----	29	288	−34.7	----	28	283	−37.6	----	30	287	−34.2	43	28	286	−36.5	----	23	288	−33.8	----
11,000	25	247	−44.4	----	29	244	−44.4	----	29	249	−42.7	----	28	245	−44.3	----	30	248	−41.8	----	27	247	−44.2	----	22	249	−41.7	----
12,000	25	212	−52.5	----	29	211	−50.6	----	28	215	−50.9	----	28	210	−50.5	----	30	214	−49.4	----	27	212	−51.9	----	20	214	−50.3	----
13,000	22	182	−59.2	----	27	180	−55.7	----	25	183	−58.6	----	27	180	−55.2	----	30	183	−56.5	----	25	182	−57.6	----	17	184	−58.0	----
14,000	19	155	−65.3	----	23	153	−59.3	----	21	156	−65.3	----	19	154	−58.7	----	28	156	−62.4	----	22	154	−61.8	----	8	156	−65.6	----
15,000	11	132	−67.0	----	16	131	−62.0	----	10	133	−68.5	----	12	132	−61.6	----	20	133	−65.6	----	14	132	−65.1	----	----	----	----	----
16,000	----	----	----	----	9	111	−61.8	----	----	----	----	----	6	112	−64.0	----	13	114	−67.0	----	6	112	−66.9	----	----	----	----	----
17,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	96	−67.9	----	----	----	----	----	----	----	----	----

Altitude (meters) m. s. l.	Medford Oreg.[1] (409 m.)				Miami, Fla.[1] (4 m.)				Nashville, Tenn. (180 m.)				Norfolk, Va.[1] (4 m.)				Oakland, Calif. (2 m.)				Ogden, Utah (1355 m.)				Oklahoma City, Okla. (391 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	966	23.8	38	31	1,017	26.1	87	31	995	24.7	72	22	1,018	24.5	67	31	1,012	16.2	77	31	862	23.2	30	30	967	27.4	60
500	31	956	24.2	38	31	962	24.2	90	31	959	23.6	66	22	962	20.8	68	31	956	18.9	54	----	----	----	----	30	955	27.9	53
1,000	31	903	21.0	40	31	909	21.0	87	31	906	20.7	68	22	908	17.6	60	31	902	22.0	22	----	----	----	----	30	903	25.7	49
1,500	31	852	17.1	44	31	858	17.9	82	31	855	17.4	68	22	857	14.6	54	31	851	20.2	16	31	848	25.5	18	30	853	22.1	52
2,000	31	803	13.2	51	31	808	14.9	77	31	806	14.2	71	22	807	12.4	47	31	802	17.3	15	31	800	22.2	17	30	805	18.7	52
2,500	31	756	10.1	54	31	762	12.3	72	31	759	11.3	68	22	760	10.5	42	31	756	14.3	14	31	755	18.0	19	30	759	15.6	52
3,000	31	712	7.4	52	31	718	9.7	67	31	715	8.4	64	22	715	8.1	42	31	712	11.3	14	31	712	13.6	22	30	715	12.3	49
4,000	31	629	1.8	44	31	636	4.0	64	31	633	3.1	57	22	633	2.4	----	31	632	4.8	----	31	631	4.9	27	30	634	5.3	42
5,000	31	555	−4.6	38	31	562	−1.5	62	31	559	−2.1	49	22	559	−2.8	----	30	558	−1.7	----	30	557	−3.5	34	30	561	−1.0	41
6,000	30	488	−11.1	33	31	495	−7.3	57	29	493	−7.8	46	22	492	−8.5	----	30	491	−9.1	----	30	490	−10.9	41	29	494	−6.9	32
7,000	30	428	−18.1	32	30	435	−13.6	53	28	432	−14.0	52	21	432	−14.9	----	30	431	−16.5	----	30	430	−17.9	----	29	434	−13.0	32
8,000	30	374	−25.6	31	30	380	−20.1	53	28	378	−20.8	51	14	379	−21.2	----	30	376	−24.1	----	30	375	−25.5	----	29	379	−20.0	----
9,000	30	324	−33.5	31	30	331	−27.3	50	28	329	−28.1	50	14	330	−28.2	----	30	327	−31.5	----	30	326	−33.4	----	29	331	−27.0	----
10,000	26	281	−40.8	----	27	288	−34.9	----	27	286	−35.6	----	12	287	−35.8	----	30	284	−38.9	----	30	282	−40.7	----	29	288	−34.4	----
11,000	25	242	−47.1	----	27	148	−43.0	----	25	247	−43.3	----	12	248	−43.4	----	30	244	−45.3	----	30	243	−47.1	----	28	248	−42.0	----
12,000	25	208	−51.3	----	26	214	−51.1	----	23	213	−50.6	----	9	213	−51.5	----	30	210	−50.3	----	29	209	−51.8	----	28	214	−49.4	----
13,000	25	178	−53.4	----	24	183	−58.0	----	20	183	−57.5	----	8	182	−57.2	----	28	180	−54.7	----	29	178	−56.1	----	25	183	−56.6	----
14,000	23	152	−56.3	----	18	156	−63.8	----	12	156	−61.8	----	8	155	−61.4	----	28	154	−59.7	----	27	152	−60.6	----	23	157	−61.6	----
15,000	15	131	−59.1	----	8	133	−68.3	----	7	132	−66.3	----	6	132	−64.4	----	21	131	−63.5	----	22	130	−63.6	----	16	133	−65.9	----
16,000	----	----	----	----	----	----	----	----	----	----	----	----	6	112	−66.5	----	16	111	−64.1	----	16	110	−63.9	----	----	----	----	----
17,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	9	95	−62.6	----	9	93	−63.8	----	----	----	----	----
18,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7	79	−62.9	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees Centigrade, and relative humidities in percent, obtained by radiosondes during August 1944*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

Altitude (meters) m. s. l.	Omaha, Nebr. (301 m.)				Phoenix, Ariz. (339 m.)				Pittsburgh, Pa. (392 m.)				Portland, Maine [2] (20 m.)				Rapid City, S. Dak. [4] (981 m.)				St. Louis, Mo. (171 m.)				St. Paul, Minn. (225 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	978	22.9	78	31	967	32.4	37	31	972	21.1	72	31	1,012	18.0	83	----	----	----	----	31	994	24.2	68	31	986	21.7	69
500	31	956	22.6	75	31	950	35.1	25	31	960	21.4	66	31	957	20.9	58	----	----	----	----	31	958	23.6	60	31	955	20.7	61
1,000	31	902	20.5	68	31	899	31.6	25	31	906	19.1	60	31	903	18.2	55	----	----	----	----	31	905	20.1	63	31	902	17.3	63
1,500	31	852	18.2	62	31	850	27.6	28	31	855	15.7	62	31	852	14.7	58	----	----	----	----	31	854	16.7	65	31	850	13.9	64
2,000	31	803	16.0	54	31	803	23.4	31	31	805	12.3	60	31	802	11.1	62	----	----	----	----	31	804	14.0	60	31	801	11.3	59
2,500	31	757	13.6	46	31	758	19.2	36	31	758	9.2	59	31	755	7.9	63	----	----	----	----	31	758	11.4	52	31	754	8.7	51
3,000	31	713	10.3	45	31	715	15.2	37	31	714	6.4	51	31	711	4.9	60	----	----	----	----	31	714	8.7	48	31	710	6.0	48
4,000	31	632	3.7	42	31	634	7.5	38	30	631	1.6	40	31	628	−.3	53	----	----	----	----	31	632	3.0	44	31	627	.1	46
5,000	31	558	−2.9	39	31	561	−.1	46	29	557	−3.6	35	31	554	−6.0	49	----	----	----	----	30	558	−2.5	34	31	553	−6.1	49
6,000	31	491	−9.6	34	31	494	−6.4	39	29	490	−9.6	37	31	487	−11.7	46	----	----	----	----	30	491	−8.2	33	31	486	−12.4	48
7,000	31	431	−15.8	----	31	435	−12.3	29	29	430	−16.1	39	31	427	−18.1	45	----	----	----	----	29	431	−14.7	34	31	426	−19.0	46
8,000	30	376	−22.9	----	31	380	−19.3	----	29	375	−23.1	----	30	372	−25.1	44	----	----	----	----	29	377	−21.8	39	31	372	−25.9	----
9,000	30	327	−30.2	----	31	331	−26.7	----	29	326	−30.0	----	28	323	−32.5	44	----	----	----	----	29	328	−29.2	43	31	322	−33.1	----
10,000	30	284	−37.1	----	31	288	−34.4	----	29	284	−37.4	----	27	281	−39.1	34	----	----	----	----	28	285	−36.5	----	31	280	−40.0	----
11,000	30	245	−44.1	----	31	249	−41.8	----	29	244	−44.8	----	25	243	−45.0	----	----	----	----	----	27	246	−43.9	----	31	241	−46.3	----
12,000	29	211	−50.3	----	31	214	−48.8	----	29	210	−51.7	----	24	209	−50.6	----	----	----	----	----	27	212	−51.0	----	31	207	−50.6	----
13,000	26	181	−55.4	----	31	184	−55.6	----	28	180	−56.7	----	22	179	−54.6	----	----	----	----	----	27	181	−57.1	----	30	177	−54.4	----
14,000	24	154	−60.3	----	30	157	−61.8	----	26	153	−60.2	----	18	153	−57.9	----	----	----	----	----	22	155	−62.2	----	25	152	−58.2	----
15,000	14	131	−62.5	----	22	133	−66.0	----	21	130	−62.0	----	14	130	−60.0	----	----	----	----	----	15	131	−65.5	----	17	129	−60.1	----
16,000	7	112	−64.1	----	8	113	−68.2	----	16	111	−62.9	----	10	111	−61.9	----	----	----	----	----	10	111	−65.6	----	9	110	−59.1	----
17,000	----	----	----	----	6	96	−69.1	----	10	94	−62.6	----	7	94	−61.5	----	----	----	----	----	----	----	----	----	----	----	----	----
18,000	----	----	----	----	----	----	----	----	----	----	----	----	5	80	−59.9	----	----	----	----	----	----	----	----	----	----	----	----	----

Altitude (meters) M. S. L.	San Antonio, Tex. (240 m.)				San Diego, Calif. [1] (19 m.)				San Juan, P. R. (15 m.)				Santa Maria, Calif. (71 m.)				S.S. Marie, Mich. [3] (221 m.)				Seattle, Wash. [1] (22 m.)				Spokane, Wash. (598 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	985	28.3	64	31	1,008	18.8	84	31	1,014	26.4	86	31	1,004	13.8	85	29	988	15.9	86	29	1,013	20.5	63	31	942	22.5	38
500	31	956	26.4	68	31	954	20.1	49	31	956	23.0	83	31	955	18.5	63	29	957	17.5	72	29	958	16.7	67	----	----	----	----
1,000	31	904	23.0	70	31	900	23.7	22	31	906	19.9	78	31	902	23.6	18	29	902	16.1	64	29	904	13.2	71	31	899	20.5	34
1,500	31	854	19.8	72	31	850	22.9	20	31	855	17.0	73	31	851	21.7	15	29	851	13.2	61	29	852	10.0	71	31	849	16.2	39
2,000	31	805	16.5	73	31	802	20.7	19	31	806	14.6	63	31	803	18.6	16	29	801	10.5	58	29	801	7.5	65	31	800	11.8	47
2,500	21	759	14.1	59	31	757	17.7	19	31	759	12.2	52	31	757	15.3	16	29	755	7.8	56	29	754	5.2	61	31	753	7.6	55
3,000	31	716	11.3	54	31	713	14.3	21	31	716	9.6	44	31	713	12.1	17	29	710	5.0	53	29	709	2.4	56	31	708	3.7	59
4,000	31	634	5.4	47	31	633	7.0	25	31	634	4.0	38	31	632	5.8	----	29	628	−.1	45	29	626	−2.9	42	31	626	−2.7	50
5,000	31	561	−.6	43	31	560	.3	31	30	560	−1.5	33	31	558	−.6	----	28	553	−5.8	45	29	551	−8.6	36	31	551	−8.8	41
6,000	30	494	−6.4	38	31	493	−5.7	25	30	493	−7.3	31	31	492	−7.7	----	28	486	−11.8	45	28	484	−15.3	32	30	484	−15.5	36
7,000	30	434	−12.4	39	31	434	−12.5	----	28	433	−14.0	----	31	432	−14.8	----	28	426	−18.4	42	28	423	−22.8	----	30	423	−22.3	35
8,000	30	380	−18.8	42	31	380	−19.6	----	28	379	−21.1	----	31	377	−22.4	----	28	372	−25.6	40	27	368	−30.1	----	29	368	−29.6	----
9,000	30	331	−26.1	38	27	331	−27.2	----	25	329	−28.5	----	31	328	−29.8	----	27	322	−33.1	39	27	318	−37.7	----	28	318	−36.9	----
10,000	30	288	−33.8	----	27	288	−34.6	----	23	286	−36.5	----	31	285	−36.8	----	24	280	−39.8	39	27	275	−45.2	----	28	276	−43.8	----
11,000	30	249	−41.5	----	27	249	−41.6	----	22	247	−44.4	----	30	246	−43.9	----	22	242	−45.4	----	26	237	−51.1	----	28	237	−49.3	----
12,000	30	215	−49.1	----	27	214	−48.6	----	18	212	−52.8	----	30	212	−50.2	----	21	208	−50.3	----	25	202	−52.5	----	26	203	−51.6	----
13,000	30	184	−56.5	----	21	184	−55.4	----	13	181	−60.9	----	29	181	−56.7	----	20	178	−53.7	----	23	174	−54.1	----	24	174	−52.0	----
14,000	24	157	−63.3	----	17	157	−61.4	----	8	154	−66.7	----	28	154	−62.4	----	13	152	−56.4	----	21	148	−55.3	----	18	149	−53.1	----
15,000	12	133	−67.6	----	10	134	−67.1	----	----	----	----	----	23	131	−66.3	----	9	130	−58.5	----	21	127	−56.6	----	13	127	−54.6	----
16,000	----	----	----	----	----	----	----	----	----	----	----	----	11	112	−67.5	----	----	----	----	----	18	108	−56.4	----	7	109	−54.9	----
17,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	11	93	−56.1	----	----	----	----	----

Altitude (meters) m. s. l.	Swan Island, W. I. (10 m.)				Tacubaya, Mexico (2,306 m.)				Tampa, Fla. (3 m.)				Tatoosh Island, Wash. (31 m.)				Toledo, Ohio (191 m.)				Tongue Point, Oreg. [1] (21 m.)				Washington, D. C. (25 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,012	27.2	84	31	774	15.9	78	28	1,017	25.6	87	31	1,014	12.6	95	31	993	20.1	80	25	1,018	16.8	82	30	1,014	23.6	75
500	31	957	23.6	84	----	----	----	----	28	962	23.7	79	31	959	12.0	89	31	958	21.2	65	25	962	14.2	80	30	960	21.8	63
1,000	31	904	20.4	78	----	----	----	----	28	908	21.0	75	31	904	11.4	75	31	905	18.1	63	25	908	12.4	73	30	906	18.8	63
1,500	31	854	17.7	67	----	----	----	----	28	857	18.1	71	31	851	10.1	62	31	854	14.6	66	25	855	11.4	56	30	855	15.6	64
2,000	31	805	15.1	63	----	----	----	----	26	808	15.3	68	31	801	7.3	58	31	804	11.5	61	25	805	10.3	41	30	806	12.2	63
2,500	31	758	12.5	53	31	756	14.6	77	26	762	12.5	64	31	754	5.5	46	31	757	9.0	55	25	758	8.0	39	30	758	9.3	58
3,000	31	714	9.8	42	31	713	11.1	78	26	718	9.9	61	31	709	3.0	41	31	713	6.4	47	25	713	5.5	37	30	714	6.9	49
4,000	31	632	4.2	42	31	632	4.2	88	25	636	4.0	57	31	626	−2.7	39	31	630	0.9	38	25	630	−0.5	28	30	632	1.8	40
5,000	30	558	−1.4	36	30	559	−1.7	88	24	561	−1.7	56	31	551	−5.7	36	31	556	−5.5	35	25	555	−6.5	----	30	558	−3.6	39
6,000	27	492	−7.4	36	30	492	−7.2	77	23	494	−7.6	61	31	484	−15.2	38	31	488	−10.9	34	25	488	−12.9	----	30	490	−9.2	35
7,000	26	432	−13.7	43	28	432	−12.9	72	21	434	−13.7	59	31	423	−22.4	41	31	429	−17.1	31	25	427	−20.5	----	30	431	−15.8	37
8,000	24	378	−20.2	47	28	378	−19.7	72	21	380	−20.5	60	31	368	−30.0	38	31	374	−23.9	36	19	370	−29.7	----	30	376	−22.6	37
9,000	24	329	−27.2	47	28	329	−26.8	71	21	331	−27.8	52	31	319	−37.7	----	31	325	−30.6	40	19	322	−37.5	----	30	327	−29.8	----
10,000	23	287	−34.8	----	26	286	−35.1	68	18	287	−35.6	----	31	275	−44.9	----	30	282	−37.0	----	18	278	−44.3	----	30	284	−37.2	----
11,000	22	248	−43.2	----	25	247	−43.8	----	16	248	−43.6	----	29	237	−50.8	----	30	244	−43.9	----	17	239	−48.5	----	30	245	−44.7	----
12,000	20	213	−51.6	----	23	213	−52.3	----	15	213	−50.7	----	28	203	−52.6	----	29	210	−50.1	----	15	205	−50.9	----	30	211	−52.2	----
13,000	17	182	−59.1	----	17	182	−60.5	----	13	182	−58.7	----	26	174	−53.9	----	28	180	−55.0	----	15	176	−53.0	----	28	180	−57.9	----
14,000	9	156	−65.0	----	----	----	----	----	8	154	−65.6	----	21	148	−54.6	----	25	154	−57.9	----	14	150	−54.0	----	22	154	−62.2	----
15,000	----	----	----	----	----	----	----	----	----	----	----	----	10	127	−56.3	----	22	131	−60.4	----	11	128	−56.4	----	16	130	−64.6	----
16,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	11	112	−62.2	----	9	110	−56.9	----	7	111	−63.7	----
17,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6	96	−61.7	----	7	94	−55.8	----	----	----	----	----
18,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6	80	−54.8	----	----	----	----	----

[1] U. S. Navy.
[2] Humidity data obtained by hair hygrometer, others using electric hygrometer.
[3] Insufficient observations.
[4] Data not yet received.

NOTE

All observations taken near 11:00 p. m., e. s. t., except at Mazatlan where they are taken near 9:00 p. m.

"Number of observations" refers to pressure only, as temperature and humidity data are sometimes missing for some observations at certain levels. Relative humidity data are not used in daily observations when the temperature is below −40.0° C.

None of the means included in these tables are based on less than 15 surface or 5 standard level observations.

Means for observations obtained by the electric hygrometer have been adjusted to compensate for the values occurring below the operating range of the humidity element.

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees Centigrade, and relative humidities in percent, obtained by radiosondes during August 1944*—Continued

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL—Continued

LATE REPORT FOR JULY 1944

Altitude (meters) M. S. L.	Swan Island, W. I. (10 m.) Number of observations	Pressure	Temperature	Relative humidity	Altitude (meters) M. S. L.	Swan Island, W. I. (10 m.) Number of observations	Pressure	Temperature	Relative humidity	Altitude (meters) M. S. L.	Swan Island, W. I. (10 m.) Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,013	27.1	84	5,000	31	560	−1.3	42	13,000	24	183	−58.6	----------
500	31	958	23.8	86	6,000	29	493	−6.8	39	14,000	15	156	−65.4	----------
1,000	31	905	20.7	81	7,000	29	434	−13.2	36	15,000	9	132	−72.7	----------
1,500	31	854	17.9	74	8,000	29	379	−19.8	35	16,000	----------	----------	----------	----------
2,000	31	806	15.5	65	9,000	29	330	−26.8	34	17,000	----------	----------	----------	----------
2,500	31	759	13.1	55	10,000	28	287	−34.6	----------	18,000	----------	----------	----------	----------
3,000	31	716	10.5	46	11,000	27	248	−42.6	----------					
4,000	31	634	4.5	43	12,000	26	214	−50.8	----------					

TABLE 2.—*Free-air resultant winds based on pilot-balloon observations made near 5 p. m. (75th meridian time) during August 1944. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (538 m.) Observations	Direction	Velocity	Albuquerque, N. Mex. (1,630 m.) Observations	Direction	Velocity	Atlanta, Ga. (299 m.) Observations	Direction	Velocity	Billings, Mont. (1,095 m.) Observations	Direction	Velocity	Bismarck, N. Dak. (512 m.) Observations	Direction	Velocity	Boise, Idaho (870 m.) Observations	Direction	Velocity	Brownsville, Tex. (7 m.) Observations	Direction	Velocity	Buffalo, N. Y. (220 m.) Observations	Direction	Velocity	Burlington, Vt. (132 m.) Observations	Direction	Velocity	Charleston, S. C. (17 m.) Observations	Direction	Velocity	Cincinnati, Ohio (152 m.) Observations	Direction	Velocity	Denver, Colo. (1,627 m.) Observations	Direction	Velocity	El Paso, Tex. (1,196 m.) Observations	Direction	Velocity
Surface	31	159	4.7	31	198	1.5	30	175	0.8	31	1	2.1	30	204	1.0	31	324	4.6	31	133	6.3	31	247	2.5	30	238	2.1	31	143	2.0	30	248	1.1	31	80	2.0	31	163	2.5
500	...	...	...	...	...	...	30	178	0.9	...	...	...	...	...	...	...	...	...	31	135	8.3	31	254	4.2	30	234	4.1	31	173	3.6	30	238	1.9	...	...	...	...	...	...
1,000	31	168	5.3	...	...	...	30	192	1.6	...	...	...	30	261	0.9	31	324	4.8	30	144	8.2	30	248	5.3	30	259	4.6	28	206	3.2	28	253	2.5	...	...	...	...	...	...
1,500	31	170	5.2	...	...	...	28	234	1.4	31	332	0.4	30	241	1.8	31	319	4.5	29	146	7.4	27	250	5.5	30	272	5.5	26	235	3.7	28	245	2.7	...	...	...	31	164	2.5
2,000	29	170	4.8	31	195	2.9	24	262	1.4	31	286	1.8	29	255	2.7	31	295	3.7	23	142	5.9	27	260	6.2	28	274	6.8	24	252	3.5	26	254	2.2	31	95	2.0	31	165	1.6
2,500	25	173	3.9	31	210	2.1	21	281	2.2	31	273	3.9	25	269	5.8	31	264	5.1	22	140	5.1	24	278	5.8	24	279	7.9	19	263	3.7	24	264	2.8	31	93	1.2	31	182	1.1
3,000	25	171	2.3	31	252	2.2	16	299	3.8	31	269	7.9	20	272	8.2	31	247	5.6	19	139	4.5	21	278	6.2	23	283	8.4	19	259	2.9	21	283	2.2	31	131	0.9	31	185	0.7
4,000	24	178	1.0	30	293	3.0	11	296	3.7	29	258	11.0	17	261	13.6	31	248	9.3	14	144	3.8	19	286	6.2	19	289	8.5	16	238	3.1	15	285	3.9	29	251	3.6	27	51	0.5
5,000	21	307	1.1	28	303	4.5	...	...	...	28	261	14.0	14	268	15.7	30	253	11.6	14	154	3.2	17	293	7.0	18	289	10.2	14	260	2.1	11	292	6.1	25	274	6.9	23	70	1.2
6,000	16	301	1.6	25	305	4.0	...	...	...	25	262	18.2	10	275	18.6	29	252	13.5	12	130	2.3	15	309	7.9	17	295	11.0	10	305	2.0	...	...	...	23	271	9.5	20	22	1.6
8,000	14	349	1.7	22	288	4.9	...	...	...	23	267	21.0	...	...	...	24	252	20.0	11	111	1.6	10	307	8.8	...	...	...	...	...	...	...	...	...	16	277	13.6	18	302	2.1
10,000	...	...	...	21	267	7.3	...	...	...	16	271	21.5	...	...	...	11	256	26.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	292	15.5	15	297	4.3
12,000	...	...	...	15	267	9.3	...	...	...	10	275	19.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14,000	...	...	...	14	267	10.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16,000	...	...	...	12	267	8.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.) Observations	Direction	Velocity	Grand Junction, Colo. (1,413 m.) Observations	Direction	Velocity	Greensboro, N. C. (271 m.) Observations	Direction	Velocity	Havre, Mont. (767 m.) Observations	Direction	Velocity	Jacksonville, Fla. (16 m.) Observations	Direction	Velocity	Joliet, Ill. (178 m.) Observations	Direction	Velocity	Las Vegas, Nev. (573 m.) Observations	Direction	Velocity	Little Rock, Ark. (88 m.) Observations	Direction	Velocity	Medford, Oreg. (410 m.) Observations	Direction	Velocity	Miami, Fla. (15 m.) Observations	Direction	Velocity	Mobile, Ala. (66 m.) Observations	Direction	Velocity	Nashville, Tenn. (194 m.) Observations	Direction	Velocity	New York, N. Y. (15 m.) Observations	Direction	Velocity
Surface	31	215	3.7	30	336	1.7	28	207	1.5	30	264	1.8	31	121	2.4	30	205	1.9	31	159	2.6	29	125	1.3	31	300	2.2	31	125	3.1	29	176	2.8	31	171	1.8	30	210	1.8
500	...	...	...	...	...	...	28	208	2.1	...	...	...	31	153	3.8	30	222	2.1	...	...	...	29	130	1.1	31	302	2.4	31	122	5.3	29	185	3.7	31	182	2.1	30	249	3.1
1,000	...	...	...	...	...	...	28	223	2.2	30	263	3.1	31	178	2.7	29	214	2.0	31	177	3.5	29	182	1.0	31	319	2.7	30	125	5.0	22	217	3.1	29	213	1.7	30	269	4.2
1,500	...	...	...	30	323	1.8	28	260	2.6	30	270	3.3	28	212	2.4	28	248	2.8	31	187	3.5	28	255	1.5	31	298	2.2	30	121	3.8	18	244	2.9	27	240	2.4	29	291	5.1
2,000	31	215	3.7	30	286	2.5	28	277	3.1	29	254	3.9	27	235	2.1	22	267	2.8	31	202	3.7	27	277	2.2	31	257	2.4	29	121	3.0	15	249	3.0	27	257	2.7	25	314	5.3
2,500	31	222	3.9	30	269	3.4	24	283	3.9	29	263	4.6	23	262	2.2	21	265	4.1	31	215	4.7	25	279	2.2	31	240	3.3	27	116	2.8	13	241	1.7	22	254	3.1	23	311	5.4
3,000	31	235	4.1	29	266	5.0	20	278	5.4	25	268	6.2	20	262	2.2	21	279	4.5	30	227	6.2	24	302	3.4	30	238	3.8	25	123	3.3	10	316	1.1	18	260	4.1	18	326	5.2
4,000	31	246	5.1	28	262	5.8	14	297	4.9	16	245	7.5	14	260	2.0	14	295	4.9	28	231	7.6	21	304	5.2	29	249	5.1	25	114	2.8	...	...	...	14	279	5.0	10	317	4.5
5,000	31	241	7.8	25	258	5.6	...	...	...	14	251	11.7	11	268	2.7	10	286	6.5	28	239	5.8	20	301	5.5	28	246	6.8	23	129	2.1	...	...	...	11	297	7.0	...	...	...
6,000	29	240	9.9	19	259	7.3	...	...	...	...	...	...	10	272	2.8	...	...	...	27	242	6.6	18	317	5.6	28	252	8.7	23	137	1.3	...	...	...	...	...	...	...	...	...
8,000	27	246	15.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26	242	9.9	13	334	5.2	28	257	12.7	19	75	2.5	...	...	...	...	...	...	...	...	...
10,000	24	244	21.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	256	13.8	...	...	...	18	276	13.0	16	58	6.6	...	...	...	...	...	...	...	...	...
12,000	17	256	23.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	256	17.1	...	...	...	13	269	19.6	...	...	...	...	...	...	...	...	...	...	...	...	...
14,000	10	266	17.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	247	11.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE 2.—*Free-air resultant winds based on pilot-balloon observations made near 5 p. m. (75th meridian time) during August 1944. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*—Continued

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma, City, Okla. (402 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Paul, Minn. (225 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (18 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (12 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	276	5.1	31	177	5.3	29	149	2.4	31	264	0.9	31	6	1.4	30	202	1.6	30	208	2.9	31	144	4.3	31	270	3.7	30	266	3.4	30	273	2.3	31	227	2.0	30	188	2.3
500	30	281	3.9	31	179	5.4	29	166	3.3	31	242	1.4	---	---	---	30	212	1.7	30	202	2.6	31	145	4.4	31	289	2.8	30	264	4.4	30	227	1.6	---	---	---	30	217	2.3
1,000	30	285	3.4	31	185	5.6	29	176	4.4	31	245	2.1	31	346	1.6	29	202	1.8	29	215	3.7	31	154	4.3	30	280	2.0	30	264	6.0	25	247	0.9	31	229	2.8	29	242	3.0
1,500	30	291	3.3	30	195	5.9	28	201	4.3	31	234	2.1	31	347	0.6	27	234	1.7	29	220	5.4	28	152	5.2	30	285	2.0	28	258	6.4	21	286	1.1	31	232	2.3	27	274	3.0
2,000	29	269	2.7	30	207	5.6	23	213	4.6	30	254	2.3	29	246	1.7	25	258	3.1	27	233	6.8	27	149	5.3	30	260	2.7	28	262	7.4	18	290	1.6	31	242	3.7	27	292	3.6
2,500	29	255	3.2	30	223	4.6	19	219	5.0	30	258	2.4	28	253	5.2	24	266	4.8	20	252	7.2	26	157	3.7	30	240	3.3	26	265	9.5	17	286	2.7	30	240	4.0	25	294	4.7
3,000	29	242	3.8	27	232	4.3	17	243	4.7	30	257	2.7	27	250	7.2	23	271	5.5	20	262	7.6	22	146	2.7	29	225	4.0	23	267	9.1	16	273	4.0	26	243	4.8	24	293	5.3
4,000	28	234	5.4	25	255	4.1	14	278	6.8	30	241	2.4	24	268	10.9	22	286	6.8	18	267	11.6	19	142	2.5	29	217	4.4	22	273	11.5	14	270	4.6	20	253	6.8	20	283	4.7
5,000	26	240	6.9	20	294	5.2	11	292	8.9	29	237	2.5	21	275	13.4	18	305	8.0	12	273	14.6	13	79	1.5	27	222	5.2	21	283	10.1	12	289	5.0	19	254	8.6	18	291	5.4
6,000	25	239	9.0	14	296	3.6	10	293	10.3	29	249	2.1	17	272	15.4	15	313	8.9	10	280	17.7	11	4	4.2	26	224	4.3	20	277	12.3	---	---	---	17	252	9.7	14	300	7.7
8,000	22	239	12.1	---	---	---	---	---	---	25	249	4.9	10	277	20.1	11	300	10.3	---	---	---	---	---	---	22	242	5.6	---	---	---	---	---	---	16	250	13.2	12	298	9.4
10,000	21	238	19.4	---	---	---	---	---	---	24	257	8.2	---	---	---	---	---	---	---	---	---	---	---	---	20	234	10.3	---	---	---	---	---	---	13	254	15.3	10	305	9.2
12,000	17	239	28.8	---	---	---	---	---	---	24	268	9.0	---	---	---	---	---	---	---	---	---	---	---	---	19	246	12.8	---	---	---	---	---	---	10	244	18.2	---	---	---
14,000	10	243	24.6	---	---	---	---	---	---	17	251	6.8	---	---	---	---	---	---	---	---	---	---	---	---	17	243	10.2	---	---	---	---	---	---	---	---	---	---	---	---
16,000	---	---	---	---	---	---	---	---	---	11	199	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3.—*Maximum free air wind velocities, (m. p. s.) for different sections of the United States based on pilot-balloon observations during August 1944*

Section	Surface to 2,500 meters (m. s. l.)					Above 2,500 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast [1] [2]	31.0	W.	2,170	12	Burlington, Vt.	47.2	N.	5,000	25	Albany, N. Y.	55.4	WSW.	11,622	7	Portland, Maine.
East-Central [3]	32.2	NNW.	1,401	18	Charlotte, N. C.	36.0	W.	4,777	26	Hatteras, N. C.	40.0	NNW.	7,817 8,357	25	Huntington, W. Va.
Southeast [3]	24.1	E.	1,367	20	Charleston, S. C.	22.6	SW.	4,248	31	Birmingham, Ala.	28.6	W.	19,100	30	Jacksonville, Fla.
North-Central [4]	44.6	SW.	1,575	10	St. Paul, Minn.	42.5	NNW.	3,202	31	Bismarck, N. Dak.	55.0	NW.	9,510	24	St. Paul, Minn.
Central [5]	44.2	S.	1,585	14	Kansas City, Mo.	38.0	WNW.	4,389	5	Sioux City, Iowa.	40.0	NW.	9,537	25	Indianapolis, Ind.
South-Central [6]	37.3	S.	818	25	Tulsa, Okla.	27.4	N.	4,286	30	Big Spring, Tex.	40.0	SW.	13,229	31	Waco, Tex.
Northwest [7]	34.6	WNW.	2,500	10	Ellensburg, Wash.	38.8	WNW.	4,704	10	Great Falls, Mont.	62.0	SW.	11,761	18	Pendleton, Oreg.
West-Central [8]	24.8	S.	2,464	21	Salt Lake City, Utah	33.9	WSW.	5,000	31	Reno, Nevada.	62.0	SW.	10,365	2	Ely, Nev.
Southwest [9]	34.0	W.	2,304	22	Mt. Laguna, Calif.	33.9	W.	4,014	15	Raton, N. Mex.	53.2	WSW.	11,963	2	Santa Maria, Calif.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.
[2] Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

RIVER STAGES AND FLOODS

By C. R. JORDAN

DROUGHT conditions continued during the month over most of the country east of the Mississippi River with precipitation averaging only about 50 percent of normal over a considerable area. Heavy precipitation occurred in southern Texas, the lower Missouri Valley, the northern Great Plains, and in a few other limited areas. Precipitation west of the Rockies was less than 50 percent of normal over much of the area, with California, Nevada, and portions of Oregon, Idaho, Wyoming, Utah, and Arizona reporting no appreciable rainfall.

Streamflow declined more than seasonally along the Atlantic Coast and runoff during August averaged only 50 percent of normal in a region extending from Virginia to Nova Scotia, according to the monthly review of the U. S. Geological Survey. The stage of the Scioto River at Chillicothe, Ohio, fell to a stage of 0.9 foot from August 9–14, 1944, 0.1 foot lower than any previous stage of record, and undoubtedly the lowest river stage at Chillicothe since the great drought of 1908. Local flooding was reported in eastern Maryland during the first few days of August from torrential rainfall that accompanied the passing of a tropical storm. Flooding also occurred in Iowa, Missouri, Kansas, Nebraska, and Texas.

Atlantic Slope Drainage.—A tropical storm moved inland at Wilmington, N. C., on August 1, passed north through Virginia and northeast across Maryland, passing Annapolis, Md., early on August 3. The maximum official rainfall measurement reported was 7.72 inches at Cheltenham, Md., but it is estimated that amounts from 12 to 15 inches occurred in the area just west of Annapolis. Local flooding occurred, particularly on the Bacon Ridge Branch and North River. Record stages occurred on both streams.

Otherwise river stages continued generally low.

Upper Mississippi Basin.—Stream flow was considerably above normal, especially in the western portion of the basin. Local flooding was reported in central Iowa near the end of the month.

Missouri Basin.—Slight overflow of the Solomon River at Beloit, Kans., occurred on the 3d, 27th, and 31st.

In the Republican Basin, slight overflows occurred in Sappa Creek near Beaver City, Nebr., and along Prairie Dog Creek at Norton, Kans. No overflows were reported

in the main channel above Scandia, Kans. At the latter place and also at Concordia, Kans., slight overflows occurred on the 26th. At and below Clay Center, Kans., slight to moderate overflows occurred on the 26th, with a crest of 18.4 feet, 3.4 feet above bankful, at Clay Center on that day. Another slight overflow occurred at Clay Center on the last day of the month.

Slight overflows of the Little Blue River crested at Hanover, Kans., on the 20th, 26th, and 30th and at Endicott, Nebr., on September 1. The greatest overflow since the record-breaking flood of June 1941 along the Big Blue River at and below Blue Rapids, Kans., began on the 25th and crested the following day. The crest at Blue Rapids was 12.6 feet above flood stage, and at Randolph, Kans., the crest was 6.4 feet above flood stage.

Light overflow also occured during the month along the Kansas, Grand, Osage, and extreme lower Missouri River.

Owing to the fact that most crops, except corn, in the area had matured and had been harvested, damage resulting from the August overflows was comparatively small. Preliminary estimates show the following losses: Republican River, $25,000, occurring mostly in the vicinity of Clay Center, Kans.; Blue River, $91,000, mostly to highways, bridges, and crops; Kansas River, $17,000, mostly to highways and bridges. In the other streams, no damage of consequence occurred.

West Gulf of Mexico Drainage.—Excessive rains occurred in the middle portion of the Nueces River Basin and in the upper Pedernales River Basin in southwest Texas near the end of the month. Almost 18 inches fell at Bankersmith, Tex., in the 4-day period August 27–31. The Pedernales River reached the highest stage ever recorded near Johnson City, Tex. A flood was in progress on the Nueces River at the end of the month, the crest having passed Cotulla, Tex., on the 30th with the stage 11.6 feet above flood stage.

On the night of August 23–24, a cloudburst occurred over a small section of Presidio County, Tex., north of the Chinati Mountains, in the upper watershed of Cibolo Creek. Unofficial reports place the amount of rainfall at about 5 inches. A flash flood along the creek resulted that overflowed a section of Highway 67, about 200 yards of the Santa Fe Railroad track, 250 acres of maturing crops, and some streets of Presidio. The approaches of the long bridge, 4 miles north of Presidio were washed away. Seven adobe houses were destroyed. Damage was estimated at $67,500.

Light to moderate flooding occurred along the lower Rio Grande, at and below Rio Grande City, Tex., from August 24 to September 5. The rise started from heavy rains over the Rio Grande Valley and the San Juan River watershed that occurred in connection with a tropical disturbance that moved inland just south of Brownsville, Tex., on August 22. Heavy rains again fell over the valley on the 27th, 28th, and 30th, that maintained the high stages for several days. Damage caused by the flood was not large.

FLOOD-STAGE REPORT FOR AUGUST 1944

[All dates in August unless otherwise indicated]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM					
Upper Mississippi Basin	*Feet*			*Feet*	
Middle: Indianola, Iowa	14	26	27	16.1	27
Mississippi: Louisiana, Mo	12	4	4	12.0	4
		9	9	12.0	9
		16	24	12.3	17
		26	26	12.0	26
		30	30	12.0	30
Missouri Basin					
Solomon: Beloit, Kans	18	3	3	19.8	3
		27	27	20.0	27
		31	Sept. 1	21.2	Sept. 1
Republican:					
Guide Rock, Nebr	9	25	26	9.8	25
Scandia, Kans	10	26	26	11.0	26
Concordia, Kans	8	26	26	8.5	26
Clay Center, Kans	15	26	27	18.4	26
		29	29	15.8	29
		30	31	16.2	31
Wakefield, Kans	11	26	26	12.0	26
Junction City, Kans	10	26	26	11.0	26
Little Blue:					
Endicott, Nebr	11	30	Sept. 1	12.5	Sept. 1
Hanover, Kans	14	20	20	16.5	20
		25	27	16.6	26
		30	Sept. 1	16.6	30
Big Blue:					
Barnston, Nebr	18	30	31	21.2	30
Blue Rapids, Kans	20	20	21	21.5	20–21
		25	27	32.6	26
		30	Sept. 1	25.0	31
Randolph, Kans	22	26	28	28.45	26
		30	Sept. 1	25.0	31
Kansas:					
Ogden, Kans	18	26	26	19.0	26
Manhattan, Kans	17	26	28	22.65	27
		31	Sept. 1	17.9	31
Wamego, Kans	16	26	28	19.8	27
Topeka, Kans	21	26	28	24.1	27–28
LeCompton, Kans	17	26	29	19.6	27
Lawrence, Kans	18	27	29	20.0	28
Grand:					
Chillicothe, Mo	18	26	28	23.1	27
Brunswick, Mo	12	28	30	15.0	29
Osage:					
Quenemo, Kans	30	27	27	31.2	27
La Cygne, Kans	25	27	30	27.3	29
Trading Post, Kans	24	26	30	26.2	27
Osceola, Mo	20	27	29	22.7	29
Lakeside (Bagnell Dam), Mo	60	28	30	60.1	29–30
Missouri:					
Hermann, Mo	21	30	31	21.3	30–31
St. Charles, Mo	25	30	Sept. 1	26.25	31
WEST GULF OF MEXICO DRAINAGE					
Nueces: Cotulla, Tex	15	29	[2]	26.65	30
Rio Grande:					
Rio Grande City, Tex	21	24	26	26.3	25
		29	Sept. 1	26.6	30
Hidalgo, Tex	21	27	29	21.5	27
		29	[2]	----	----
Mercedes, Tex	21	25	[2]	----	----

[1] Provisional.
[2] Continued at end of month.

CLIMATOLOGICAL DATA

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see REVIEW January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	79.6	−0.2	Scottsboro	101	7	2 stations	58	[1] 27	6.42	+1.67	Robertsdale	15.22	Collinsville	1.38
Arizona	79.0	+.6	Mohawk	118	5	Fort Valley	33	31	1.50	−.84	Ruby	6.99	7 stations	.00
Arkansas	80.0	−.1	England	104	6	5 stations	50	[1] 19	4.90	+1.31	Devils Knob	11.35	Lake City	.67
California	71.7	−.6	Cow Creek	123	13	Portola	26	[1] 23	.02	−.08	Orick (near)	.95	287 stations	.00
Colorado	66.7	+1.0	Las Animas	106	3	2 stations	20	31	.83	−1.09	Colorado Springs	3.73	Holly	T
Florida	81.6	+.1	Fort Lauderdale	100	4	Marianna	61	2	7.72	+.70	De Funiak Springs	18.91	Miami	1.48
Georgia	78.4	−1.1	4 stations	99	[1] 18	2 stations	54	[1] 27	4.93	−.29	Savannah No. 2	13.61	Atlanta Airport	1.46
Idaho	64.4	−1.9	Grand View	106	5	Sun Valley	16	25	.30	−.33	Deception Creek	2.08	33 stations	.00
Illinois	75.5	+.9	3 stations	103	9	Danville	44	25	3.78	+.41	Benton	8.78	Sullivan	1.88
Indiana	75.2	+1.6	2 stations	103	9	Frankfort	39	25	4.00	+.66	Madison	9.77	Columbia City	.96
Iowa	71.8	−.4	do	102	[1] 10	Decorah	41	25	5.88	+2.25	Atlantic Airport	8.83	Davenport	2.23
Kansas	77.9	.0	do	110	[1] 12	2 stations	39	31	5.63	+2.44	Blue Rapids	14.44	Tribune	.04
Kentucky	76.3	+.4	Greensburg	104	12	London	43	[1] 25	5.45	+1.73	Mammoth Cave	9.31	Louisa	1.52
Louisiana	82.7	+.8	2 stations	104	[1] 7	Enon Tower	60	1	7.08	+1.90	Houma	13.36	Natchitoches	.90
Maryland-Delaware	74.2	+.7	3 stations	102	[1] 11	Oakland, Md	34	[1] 25	3.59	−.92	Cheltenham, Md	9.32	Keedysville, Md	1.16
Michigan	69.5	+2.4	4 stations	102	[1] 2	Watersmeet	27	25	2.39	−.38	Ishpeming	4.87	Gaylord	.76
Minnesota	67.6	.0	New Ulm	100	10	Meadowlands	33	18	5.14	+1.83	Big Falls	11.88	Alexandria	1.37
Mississippi	81.2	+.4	3 stations	102	[1] 8	3 stations	60	[1] 20	5.42	+1.21	Magnolia	11.48	Kosciusko	1.48
Missouri	75.9	−.7	Union	107	15	Edgerton	41	26	6.09	+2.24	Amity	14.56	Alton (near)	1.23
Montana	62.7	−2.3	Roundup	101	6	4 stations	25	[1] 5	1.63	+.54	Opheim No. 2	4.40	Rapelje	.05
Nebraska	73.9	+.5	Loup City	107	13	Gordon	33	31	3.26	+.56	Sedan	9.85	Haigler	.00
Nevada	70.0	−.7	Overton	117	12	Mala Vista	26	[1] 3	T	−.48	Owyhee	.05	64 stations	.00
New England	70.5	+3.4	Norwalk, Conn	103	11	Lake Frontiere, Maine	30	27	1.79	−1.96	Burlington, Conn	5.14	New Castle, N. H.	.29
New Jersey	73.9	+1.9	Canoe Brook	104	5	Charlotteburg	35	26	2.79	−1.96	Layton	6.37	Flemington	.72
New Mexico	71.6	+.9	3 stations	110	[1] 2	Selsor Ranch	23	30	2.62	+.18	Thomas (near)	6.86	Aztec Ruins National Mon.	.45
New York	70.8	+3.1	do	102	[1] 11	2 stations	32	[1] 25	2.27	−1.45	Delhi	6.93	Ogdensburg	.31
North Carolina	74.7	−1.2	Weldon	100	5	Mount Mitchell	38	27	3.99	−1.54	Sloan	8.49	Winston Salem	1.61
North Dakota	65.6	−.9	Fort Yates	103	9	Towner	34	23	4.40	+2.31	Grand Forks Airport	12.73	McClusky	.99
Ohio	73.7	+1.9	Napoleon	105	3	Canton	37	25	4.02	+.62	Circleville	8.18	Defiance	.84
Oklahoma	82.6	+1.0	Hollis	116	2	Boise City	45	31	3.46	+.53	Hollow	8.97	Guymon	.80
Oregon	63.5	−.8	Illahe	109	29	Seneca	19	24	.14	−.28	Astoria	1.36	15 stations	.00
Pennsylvania	71.5	+1.2	3 stations	103	[1] 4	Kane	30	27	2.55	−1.62	Braddock	6.33	Montrose	.81
South Carolina	77.4	−1.5	Calhoun Falls	103	24	Caesars Head	46	27	3.32	−2.37	Beaufort	9.30	Little Mountain	.73
South Dakota	70.1	−.9	Moenville	108	8	Custer	34	31	3.71	+1.58	Marion	11.62	Deerfield	.11
Tennessee	77.5	+.7	Clarksville	102	[1] 9	Rugby	47	25	4.66	+.62	Red Boiling Springs	14.88	Greenville	.89
Texas	83.6	+.8	Memphis	117	3	Pecos	45	31	4.16	+1.79	Beaumont	13.35	Tulia	.39
Utah	70.1	+.3	St. George	108	13	4 stations	29	[1] 3	.18	−.84	Soldier Summit	2.16	39 stations	.00
Virginia	73.8	−.3	2 stations	102	[1] 5	Burkes Garden	35	25	3.56	−.89	Dante	9.51	Clifton Forge	.20
Washington	64.9	−.8	Wahluke (near)	109	30	Newport	29	19	.40	−.44	Palmer (near)	2.64	8 stations	.00
West Virginia	72.2	+.4	Great Cacapon	105	13	Cranberry Glades	32	25	2.96	−1.15	New Cumberland	7.41	Hamlin	.80
Wisconsin	70.0	+2.3	Wisconsin Rapids	103	13	Land O'Lakes	30	25	3.44	+.09	Grantsburg	8.91	Ladysmith	1.19
Wyoming	64.2	+.1	2 stations	102	8	Big Piney	18	15	.23	−.84	Pine Bluffs	1.37	14 stations	.00
Alaska (July)	56.0	+.5	Eagle	90	7	2 stations	29	[1] 15	2.54	−.10	Whittier	16.77	Golovin	.57
Hawaii	74.5	−.4	2 stations	94	[1] 7	Haleakala Ranger Station	46	[1] 17	4.10	−2.47	Kukiu	24.00	14 stations	.00
Puerto Rico	78.8	−.1	Ponce	100	14	Guineo Reservoir	58	24	11.52	+3.74	Rio Blanco (1,800 ft)	24.81	Mona Island	2.44

[1] Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
	Ft.	*Ft.*	*Ft.*	*Mbs.*	*Mbs.*	*Mbs.*	*°F.*	*°F.*	*°F.*		*°F.*	*°F.*		*°F.*	*°F.*		*°F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In*	*In.*	
New England							71.1	+4.1										75	1.57	−1.9			4.8								4.8			
Eastport	75	67	85	1,010.5	1,013.2	−1.4	64.2	+3.5	91	11	74	51	26	55	37	76	54	78	0.66	−2.3	0.49	6	7.4	sw	19	nw	19	13	9	9	4.8	0.0	0.0	2
Greenville, Maine	1,070	6	41	975.6	1,014.6	----	66.1	+3.8	96	14	80	39	8	52	43	86	58	---	2.83	−.5	1.80	11	---	---	---	---	---	---	4	20	7	---	.0	.0	5
Portland, Maine [1]	103	5	43	1,010.2	1,014.6	− .6	70.6	+4.2	99	12	83	46	26	58	34	36	62	80	.59	−2.6	.40	4	7.6	s	21	n	24	19	10	2	5.6	.0	.0	2
Concord [1]	289	5	45	1,004.4	1,015.2	− .0	70.2	+4.7	99	12	85	40	20	56	43	51	59	72	.95	−2.6	.70	5	6.4	nw.	23	nw.	18	3	20	8	5.8	.0	.0	5
Burlington [1]	403	5	51	1,000.0	1,014.6	− .3	72.1	+4.2	101	11	85	46	26	60	35	32	60	70	2.76	−.6	1.95	8	8.0	s.	26	s.	16	10	11	10	5.3	.0	.0	4
Boston [1]	124	33	62	1,010.5	1,015.2	− .4	74.7	+4.8	101	12	84	53	27	65	27	10	60	66	1.79	−1.8	1.25	5	10.0	sw.	34	nw.	16	13	10	8	4.9	.0	.0	6
Nantucket [1]	12	11	59	1,014.9	1,015.6	.0	71.0	+3.2	84	23	77	55	25	65	20	3	64	84	.57	−2.8	.27	4	11.6	sw.	29	ne.	8	16	8	7	4.3	.0	.0	3
Block Island	26	11	46	1,014.6	1,015.9	+ .3	71.4	+2.9	88	11	78	56	27	65	21	2	64	84	2.06	−1.6	1.63	4	13.9	sw.	28	ne.	8	15	8	8	4.4	.0	.0	2
Providence [1]	159	46	60	1,009.8	1,015.9	+ .3	75.6	+4.6	100	12	86	52	26	65	32	5	60	72	1.34	−2.2	.87	4	8.3	sw.	27	sw.	14	11	11	9	4.8	.0	.0	2
Hartford [1]	159	5	44	1,009.8	1,015.9	+ .3	73.0	+4.1	98	12	85	44	26	60	36	21	62	76	2.44	−1.8	1.11	9	7.3	s.	27	nw.	5	9	16	6	5.0	.0	.0	5
New Haven [1]	107	5	39	1,011.9	1,015.9	+ .3	73.2	+4.6	94	11	84	50	25	63	31	3	62	70	1.30	−2.6	.57	9	6.4	sw.	24	w.	5	13	10	8	4.8	.0	.0	3
Middle Atlantic							75.1	+1.7										74	3.63	−0.6			4.7											
Albany [1]	97	26	40	1,011.5	1,015.6	+.4	72.2	+3.2	99	12	84	44	26	60	35	27	62	75	2.80	−.3	1.08	10	6.4	s.	22	nw.	18	11	11	9	5.3	.0	.0	7
Binghamton [2]	871	60	79	985.4	1,016.9	+1.3	71.8	+3.8	98	13	84	42	20	59	38	36	61	83	4.99	+1.4	2.17	11	4.8	w.	20	nw.	24	7	16	8	5.4	.0	.0	10
New York	314	415	454	1,004.4	1,015.9	.0	75.9	+2.8	96	4	85	55	25	67	28	0	62	68	3.08	−1.2	1.79	8	13.4	sw.	52	nw.	16	14	10	7	4.3	.0	.0	3
Harrisburg [1]	374	30	49	1,003.1	1,016.6	+.3	75.3	+2.7	101	12	88	46	26	63	35	8	62	70	1.51	−2.5	.88	6	6.7	w.	26	s.	21	9	12	10	5.6	.0	.0	3
Philadelphia [1]	114	6	56	1,012.5	1,015.6	+.7	75.4	+2.1	97	5	86	51	27	65	32	2	62	70	2.78	−1.8	2.61	5	8.2	sw.	24	e.	2	13	9	9	4.8	.0	.0	1
Reading	323	47	306	1,003.7	1,016.6	----	76.0	+3.1	100	13	87	49	26	65	31	3	---	---	2.53	−1.7	1.54	7	9.3	n.	32	e.	2	14	9	8	4.4	.0	.0	3
Scranton	805	72	104	988.2	1,017.3	+1.4	72.8	+3.0	98	13	84	45	26	61	35	28	---	---	3.28	−.4	1.17	9	5.6	n.	28	nw.	16	12	15	4	4.3	.0	.0	8
Atlantic City	52	37	172	1,014.6	1,016.6	+.7	72.9	+.4	94	5	80	55	25	66	25	2	64	80	2.91	−1.6	2.40	5	14.6	s.	36	e.	2	17	6	8	4.3	.0	.0	0
Trenton	190	89	107	1,009.5	1,016.6	----	75.3	+2.3	97	4	85	53	27	66	31	1	62	68	1.84	−2.9	1.53	8	8.5	sw.	24	n.	24	12	11	8	4.7	.0	.0	3
Baltimore [2]	123	100	215	1,012.2	1,016.9	+.6	77.4	+1.9	99	4	86	56	26	68	24	0	64	68	4.22	−.2	3.01	9	9.4	s.	34	ne.	2	17	6	8	4.2	.0	.0	2
Washington [2]	112	56	100	1,012.9	1,017.3	+1.0	76.2	+1.2	98	5	86	53	26	66	27	0	64	72	6.49	+2.5	6.15	9	6.1	s.	23	ne.	2	15	9	7	4.4	.0	.0	3
Cape Henry	18	8	54	1,016.3	1,017.3	----	77.1	+.2	95	5	85	58	26	69	26	0	66	76	4.66	−.2	1.89	8	10.3	sw.	42	e.	2	13	10	8	4.5	.0	.0	6
Lynchburg	686	144	184	992.9	1,017.6	+1.0	74.6	−1.0	97	5	86	54	27	64	32	3	62	72	1.89	−1.9	1.16	8	7.4	s.	31	nw.	12	11	12	8	5.2	.0	.0	8
Norfolk [2]	91	80	125	1,014.2	1,018.0	+2.1	77.4	.0	97	5	85	63	28	70	26	0	66	78	6.25	+1.0	2.69	8	9.2	sw.	27	e.	2	12	10	9	5.0	.0	.0	7
Richmond	144	11	52	1,011.9	1,016.9	+.6	75.7	−.8	97	5	86	56	25	66	29	1	65	77	5.16	+.7	2.88	9	7.0	sw.	22	n.	7	14	8	9	4.6	.0	.0	5
South Atlantic							77.8	−0.3										81	5.13	−0.5			6.0											
Asheville	2,253	77	92	940.4	1,018.3	+1.7	72.0	+1.5	91	11	82	51	27	62	29	14	62	81	2.76	−1.4	.98	8	6.5	se.	23	se.	26	3	15	13	6.4	.0	.0	6
Charlotte [2]	779	63	86	990.2	1,017.6	+1.0	76.6	−.5	93	5	86	55	27	67	26	11	66	76	2.27	−2.8	.80	9	6.4	ne.	20	s.	13	8	11	12	5.8	.0	.0	4
Greensboro [1]	886	6	56	986.8	1,018.3	----	74.8	----	95	11	85	55	27	64	33	12	66	80	3.10	----	1.66	12	7.0	sw.	29	n.	2	8	12	11	5.8	.0	.0	5
Hatteras	11	5	50	1,017.3	1,018.0	+2.1	77.4	−.6	88	5	82	62	28	72	18	0	70	80	4.52	−1.2	2.57	8	12.8	sw.	49	nw.	18	9	14	8	5.4	.0	.0	6
Raleigh [1]	376	5	69	1,004.4	1,018.3	+2.0	76.3	−.6	95	5	86	56	10	66	31	0	66	81	5.48	+.1	2.20	8	8.6	sw.	32	n.	2	12	11	8	5.0	.0	.0	6
Wilmington	72	73	107	1,015.2	1,017.6	+1.7	77.9	+.3	92	24	85	61	10	71	25	0	68	80	6.60	+.2	4.18	10	9.2	sw.	46	s.	1	12	9	10	5.4	.0	.0	7
Charleston [2]	48	11	92	1,015.9	1,017.6	+1.3	79.8	−1.2	97	18	86	67	28	74	25	0	70	85	3.24	−3.3	1.32	15	10.3	s.	27	se.	13	4	15	12	6.3	.0	.0	6
Columbia, S. C. [2]	347	70	91	1,005.4	1,018.0	+1.7	78.6	−1.0	96	24	88	58	27	69	30	1	68	78	1.82	−3.6	.88	7	7.3	s.	26	s.	13	7	9	15	6.1	.0	.0	2
Greenville, S. C. [1]	1,040	18	36	981.4	1,018.0	+1.7	76.2	+.4	94	12	85	55	27	67	26	12	66	78	5.68	+.2	2.37	9	7.7	sw.	32	w.	17	8	11	12	6.0	.0	.0	6
Augusta [2]	182	62	77	1,010.8	1,017.3	+1.0	79.4	−1.0	95	12	88	59	27	70	25	3	68	78	2.47	−2.6	1.09	13	5.2	s.	24	nw.	17	5	11	15	6.5	.0	.0	7
Savannah [2]	65	73	152	1,015.2	1,017.6	+1.3	80.8	+.1	96	18	88	68	27	73	21	0	72	87	13.60	+6.3	4.06	17	9.4	s.	27	e.	26	3	16	12	6.4	.0	.0	11
Jacksonville [2]	43	86	110	1,016.3	1,018.0	+1.7	81.2	−.5	98	18	88	71	28	74	21	0	73	86	8.03	+2.2	3.42	16	6.9	s.	26	w.	6	1	19	11	6.4	.0	.0	15
Florida Peninsula							83.3	+0.9										79	3.41	−2.8			6.0											
Key West [2]	21	10	64	1,015.2	1,018.3	+1.1	85.1	+1.6	91	29	90	72	11	80	17	0	74	74	3.25	−1.3	2.01	11	8.8	e.	23	e.	15	6	19	6	5.6	.0	.0	3
Miami [2]	25	242	249	1,015.9	1,016.9	+.3	82.0	−.1	87	30	86	75	1	78	12	0	74	82	1.48	−4.4	.59	14	11.6	se.	39	se.	2	6	20	5	5.1	.0	.0	15
Tampa [1]	35	6	43	1,015.9	1,017.3	+1.4	82.8	+1.3	93	18	90	73	14	75	19	0	74	82	5.49	−2.7	1.39	14	7.9	e.	43	se.	3	0	15	16	7.4	.0	.0	24
East Gulf							79.9	−0.1										84	5.20	−0.2			6.3											
Atlanta [1]	1,173	33	72	976.3	1,016.9	+.6	77.2	−.8	94	23	86	57	28	68	24	6	66	78	1.46	−3.2	.37	13	9.0	e.	31	w.	6	4	12	15	6.8	.0	.0	7
Macon [2]	370	79	87	1,003.7	1,016.9	+.6	79.0	−.9	95	24	88	60	28	70	25	0	70	82	3.24	−1.1	1.15	13	5.8	s.	21	e.	13	6	12	13	6.3	.0	.0	6
Thomasville	278	49	58	1,007.8	1,018.0	+2.1	80.3	−.7	95	18	90	65	28	71	24	0	---	---	8.77	+3.0	1.90	18	---	---	---	---	---	---	1	14	16	---	.0	.0	12
Apalachicola	35	11	51	1,015.6	1,016.9	----	81.0	−.2	90	19	87	72	28	75	16	0	74	82	5.58	−2.0	1.69	12	6.8	s.	29	e.	19	6	8	17	6.7	.0	.0	12
Pensacola	56	54	79	1,014.6	1,016.6	+1.4	81.0	+.1	92	18	87	71	13	75	17	0	74	86	12.13	+4.1	3.32	17	6.2	sw.	24	s.	4	4	18	9	5.8	.0	.0	11
Anniston	741	9	---	---	---	---	77.6	−.6	95	8	87	60	28	68	30	0	---	---	3.95	−.1	1.08	14	---	se.	---	---	---	---	6	15	10	---	.0	.0	7
Birmingham [1]	700	5	62	991.9	1,016.9	+1.3	78.4	−.1	97	8	87	62	28	69	29	0	69	80	3.48	----	.85	11	6.9	se.	38	nw.	6	3	16	12	6.7	.0	.0	10
Mobile [2]	57	86	161	1,014.2	1,016.3	+1.1	81.6	+.6	96	18	89	70	1	74	22	0	74	90	6.94	.0	2.84	16	5.4	s.	20	s.	4	4	14	13	6.5	.0	.0	20
Montgomery [2]	218	92	105	1,009.1	1,016.9	+1.3	80.1	−.7	96	8	88	63	28	72	24	0	72	87	4.01	−.2	1.28	13	6.3	e.	24	nw.	18	7	9	15	6.3	.0	.0	10
Meridian [2]	375	67	92	1,002.7	1,015.9	+.7	80.6	+1.1	98	8	90	65	1	71	27	0	72	84	4.72	+.2	1.67	12	4.8	sw.	22	e.	3	6	19	6	5.5	.0	.0	14
Vicksburg [2]	247	82	102	1,006.4	1,014.9	−.3	82.0	+1.2	95	7	91	69	1	73	23	0	72	85	1.24	−2.2	.63	10	7.2	s.	21	nw.	8	5	14	12	6.2	.0	.0	12
New Orleans [4]	53	50	84	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Gulf							83.9	+1.5										74	4.39	+1.3			5.2											
Shreveport [1]	249	5	64	1,005.4	1,013.9	−1.0	83.9	+2.2	101	8	94	67	10	74	31	0	72	76	5.05	+2.4	1.83	11	7.9	se.	48	e.	7	7	19	5	5.5	.0	.0	11
Fort Smith	463	57	82	997.3	1,012.9	−2.0	81.6	[illegible]	101	13	91	60	28	72	31	0	70	76	7.19	+3.9	2.70	8	7.1	e.	27	nw.	7	10	12	9	5.4	.0	.0	8
Little Rock [1]	357	5	58	1,002.4	1,014.9	−.3	81.0	+1.2	99	23	91	62	28	71	31	0	70	76	2.82	−.9	1.00	8	6.6	sw.	25	nw.	8	6	14	11	5.9	.0	.0	7
Austin [1]	605	10	41	982.2	1,012.9	----	84.4	+.6	101	3	95	65	31	74	26	0	69	68	4.47	+2.4	1.89	8	9.4	s.	26	se.	20	10	13	8	5.3	.0	.0	6
Brownsville [1]	57	5	54	1,009.8	1,011.9	----	84.8	+.9	96	1	92	71	31	77	20	0	75	80	7.08	+4.2	3.05	7	12.1	se.	38	ne.	22	1	21	9	5.8	.0	.0	4
Corpus Christi [1]	20	4	33	1,012.5	1,012.9	−.6	84.2	+2.6	97	1	92	70	31	76	21	0	74	80	7.52	----	3.72	8	13.0	se.	34	s.	30	20	7	4	3.4	.0	.0	4
Dallas [1]	512	5	45	994.9	1,012.9	----	85.5	+2.0	103	2	96	61	31	75	27	0	68	64	3.10	+.3	1.29	6	10.2	s.	28	w.	26	19	5	7	4.2	.0	.0	4
Fort Worth [1]	679	35	56	989.2	1,012.5	−1.4	85.5	+2.8	104	2	95	63	31	76	25	0	66	58	2.65	.0	1.32	6	10.5	s.	32	s.	26	17	7	7	4.3	.0	.0	3
Galveston [2]	54	106	114	1,012.5	1,014.2	−.4	83.8	+.8	90	1	88	72	31	80	15	0	75	78	4.32	.0	1.23	10	10.7	s.	27	s.	30	8	15	8	5.4	.0	.0	8
Houston [2]	138	157	190	1,009.5	1,013.9	----	84.9	+1.7	100	2	94	69	31	76	24	0	73	79	6.95	+2.8	2.76	9	9.1	s.	30	ne.	19	8	15	8	5.7	.0	.0	14
Palestine	510	64	72	996.6	1,013.9	−1.0	83.5	+1.7	99	6	94	65	30	73	25	0	69	70	2.44	+.3	1.53	10	6.8	s.	22	se.	10	10	18	3	4.7	.0	.0	3
Port Arthur	34	59	134	1,013.5	1,014.6	----	84.2	+1.0	96	18	91	68	2	78	26	0	74	85	4.67	−1.4	1.64	16	11.0	s.	38	se.	19	7	15	9	5.6	.0	.0	18
San Antonio [1]	693	8	51	988.8	1,012.5	−1.0	84.0	+.5	100	2	94	64	31	74	27	0	70	70	4.32	+1.9	1.46	6	9.0	se.	31	se.	21	5	15	11	6.2	.0	.0	5

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
Ohio Valley and Tennessee	*Ft.*	*Ft.*	*Ft.*	*Mbs.*	*Mbs.*	*Mbs.*	°F. 75.8	°F. +1.4	°F.		°F	°F.		°F.	°F		°F.	% 74	*In.* 4.17	*In.* +0.7	*In.*		*Mi.*								0-10 5.4	*In.*	*In.*	
Chattanooga [1]	762	6	66	989.8	1,016.9	+1.0	77.9	+2.2	96	7	88	.62	28	67	30	1	66	76	2.22	−1.8	.74	11	6.4	s.	23	n.	6	4	13	14	6.9	.0	.0	12
Knoxville [1]	995	27	53	982.1	1,017.3	+.7	77.5	+2.1	95	7	88	58	25	67	27	0	66	75	2.87	−1.0	1.26	8	6.6	ne.	36	sw.	17	4	17	10	6.0	.0	.0	7
Memphis [4]	399	5	86	1,000.7	1,014.6	−.6	80.6	+2.2	97	7	90	61	20	71	32	0	69	75	3.21	−.2	1.42	7	6.6	sw.	18	sw.	16	6	13	12	5.9	.0	.0	7
Nashville [1]	546	5	72	996.6	1,015.9	.0	78.7	+.9	98	8	88	59	25	69	29	0	66	74	6.26	+2.6	2.74	15	7.6	s.	30	sw.	16	5	16	10	6.1	.0	.0	9
Lexington [1]	989	4	28	982.1	1,017.3	+1.0	75.0	−.5	96	12	85	52	25	65	30	11	64	76	6.22	+2.8	2.20	10	....	s.	....	....	....	....	....	....	....	.0	.0	9
Louisville [3]	525	106	120	997.3	1,016.6	+.7	76.8	−.2	96	9	86	56	25	68	27	3	64	73	5.69	+2.3	1.57	9	7.2	s.	41	sw.	17	10	11	10	5.7	.0	.0	7
Evansville [1]	431	11	40	1,000.0	1,015.6	.0	77.0	+2.0	97	9	88	52	25	66	37	3	64	72	2.45	−.9	.93	13	7.4	s.	26	sw.	16	7	14	10	5.7	.0	.0	9
Indianapolis [1]	823	5	54	986.5	1,015.9	.0	74.2	+1.8	95	10	85	51	25	63	32	9	62	74	1.98	.....	.52	8	8.8	sw.	42	sw.	12	12	12	7	5.1	.0	.0	5
Terre Haute [2]	575	68	149	995.3	1,015.9	.....	76.4	+1.2	98	9	86	54	24	66	30	4	64	74	5.85	+2.6	1.82	9	8.2	s.	38	sw.	12	14	9	8	4.7	.0	.0	5
Cincinnati [3]	627	11	51	993.9	1,016.6	+.3	76.6	+3.0	99	13	88	50	25	65	35	10	64	75	5.79	+2.4	1.88	11	6.3	sw.	32	w.	21	10	12	9	5.1	.0	.0	8
Columbus [3]	822	90	110	987.5	1,017.3	+1.0	76.0	+3.0	98	10	86	51	25	66	30	6	62	74	3.68	+.4	1.17	11	8.6	s.	31	sw.	28	14	9	8	4.9	.0	.0	6
Dayton [1]	1,003	6	55	981.0	1,016.6	.....	74.6	+1.7	94	11	85	50	25	64	30	10	60	70	3.85	+.6	1.26	14	9.2	sw.	35	w.	16	12	11	8	4.7	.0	.0	8
Elkins [3]	1,947	6	45	950.2	1,018.6	+2.0	68.4	−.7	91	13	81	44	25	56	39	43	60	84	3.03	−.8	1.68	13	4.4	w.	18	s.	13	7	10	14	6.0	.0	.0	7
Parkersburg	637	77	84	994.2	1,016.9	+.6	75.6	+1.7	99	12	87	49	25	64	37	6	62	71	2.97	−.5	1.32	12	5.4	se.	24	nw.	16	12	14	5	4.4	.0	.0	8
Pittsburgh [1]	842	39	54	987.1	1,017.5	+1.0	72.2	+.9	95	13	83	49	25	62	34	17	60	73	4.32	+1.1	1.62	12	8.3	s.	45	s.	13	12	10	9	5.1	.0	.0	7
Lower Lakes							72.9	+3.8										69	2.99	0.0											4.7			
Buffalo [1]	768	34	96	988.8	1,016.6	+1.0	71.8	+3.4	96	2	82	48	25	62	31	18	60	72	6.17	+3.1	3.65	7	11.8	sw.	38	sw.	12	11	11	9	5.0	.0	.0	5
Canton	448	10	61	999.0	1,014.9	.....	71.6	+5.1	99	15	85	42	26	58	41	31	55	60	.68	−3.0	.36	6	7.4	w.	24	se.	2	12	12	7	4.7	.0	.0	3
Oswego	335	71	85	1,003.1	1,015.6	.0	71.8	+3.4	96	11	80	50	26	63	28	19	60	68	2.13	−.5	.78	7	7.6	s.	28	n.	18	18	7	6	3.9	.0	.0	2
Rochester [1]	523	5	69	997.3	1,016.3	+.7	72.5	+4.6	98	4	84	45	27	61	35	25	58	70	2.71	−.2	1.56	11	8.6	sw.	33	w.	11	10	12	9	5.2	.0	.0	5
Syracuse [1]	596	5	57	994.2	1,016.3	+.7	72.2	+4.9	97	11	84	45	27	60	37	24	60	71	2.65	−.2	.85	9	7.8	sw.	36	w.	22	13	9	9	5.0	.0	.0	5
Erie [3]	714	57	81	991.2	1,016.9	+.6	73.2	+3.6	93	3	81	53	26	66	25	9	60	72	3.35	+.1	.97	7	6.6	sw.	20	sw.	4	8	17	6	5.1	.0	.0	5
Cleveland [1]	762	27	54	989.2	1,016.6	+.3	74.1	+3.9	97	10	85	45	25	63	32	13	60	70	3.68	+.9	2.07	7	9.4	s.	28	sw.	28	11	12	8	5.0	.0	.0	6
Sandusky	629	5	67	993.6	1,016.6	+.3	74.6	+2.8	98	10	84	51	26	65	31	6	....	....	2.91	−.2	1.04	14	7.9	sw.	23	sw.	15	13	9	9	5.0	.0	.0	8
Toledo [1]	628	5	47	993.6	1,016.3	+.4	72.6	+2.4	98	3	84	45	26	61	34	20	62	75	3.30	+.4	1.44	10	9.3	sw.	38	nw.	17	19	7	5	3.5	.0	.0	6
Fort Wayne [1]	857	5	33	985.1	1,015.9	.....	73.2	+2.3	97	3	85	44	25	62	33	19	60	69	3.01	−.1	1.14	10	6.9	sw.	30	nw.	15	13	9	9	4.8	.0	.0	9
Detroit [1]	730	5	78	990.5	1,016.6	+.3	74.4	+5.2	99	11	85	51	24	64	33	10	60	64	2.33	−.4	.83	9	8.3	sw.	26	nw.	15	13	10	8	4.7	.0	.0	5
Upper Lakes							69.5	+3.4										72	2.79	−0.1											5.0			
Alpena	609	5	89	993.2	1,015.9	.0	68.3	+4.2	95	10	78	46	25	59	31	51	57	72	.99	−1.9	.32	8	9.6	nw.	35	se.	28	12	13	6	4.7	.0	.0	7
Escanaba	612	51	72	992.6	1,014.6	−1.0	67.7	+3.4	96	11	76	45	24	59	28	48	57	72	1.18	−2.0	.48	8	10.4	s.	30	n.	17	9	17	5	5.2	.0	.0	3
Grand Rapids [3]	707	70	244	990.2	1,015.9	.0	74.0	+4.3	97	15	84	49	25	64	31	15	58	66	1.65	−1.0	.68	7	10.2	sw.	33	sw.	31	14	12	5	4.2	.0	.0	4
Lansing [3]	878	5	90	984.8	1,016.3	.....	71.0	+2.5	96	14	82	45	25	60	36	34	56	64	2.39	−.4	1.00	7	7.2	sw.	26	n.	4	15	11	5	4.2	.0	.0	5
Marquette	734	44	73	987.1	1,014.6	−.6	67.8	+4.0	95	3	77	48	25	59	34	70	56	72	2.87	+.2	1.22	9	8.2	w.	31	sw.	19	7	15	9	5.5	.0	.0	9
Sault Sainte Marie [1]	614	11	52	992.9	1,015.2	−.4	64.9	+4.1	90	4	76	43	19	54	31	76	57	82	4.72	+2.0	2.20	6	10.7	nw.	50	sw.	11	8	15	8	5.3	.0	.0	7
Chicago [1]	673	5	36	991.2	1,015.2	−.7	74.1	+2.5	99	10	85	53	29	64	37	11	60	69	1.89	−1.1	.89	8	8.0	s.	30	n.	15	10	14	7	5.0	.0	.0	4
Green Bay	617	109	141	992.2	1,015.2	−.4	71.2	+3.5	97	13	81	52	24	61	29	17	58	68	4.80	+1.6	1.55	9	9.8	s.	47	sw.	15	9	12	10	5.6	.0	.0	4
Milwaukee [1]	681	33	66	990.5	1,014.9	−1.0	71.2	+3.6	97	10	81	50	25	62	32	19	60	72	1.54	−1.1	.42	9	11.5	sw.	38	s.	30	11	12	8	5.1	.0	.0	7
Duluth [3]	1,133	5	47	972.6	1,013.5	−1.4	65.0	+2.4	88	10	74	47	24	56	25	78	56	81	5.90	+2.7	2.18	13	9.9	ne.	31	nw.	3	11	13	7	4.9	.0	.0	10
North Dakota							66.5	+0.6										71	5.62	+3.4											5.4			
Fargo [1]	940	5	43	978.0	1,011.9	−2.7	67.4	+1.3	98	9	78	45	23	57	40	62	58	76	8.52	+5.6	3.67	13	12.0	s.	39	nw.	31	9	13	9	5.3	.0	.0	9
Bismarck [1]	1,677	5	43	952.6	1,011.5	−2.4	67.4	+.7	98	9	80	43	23	55	37	59	55	70	5.05	+3.2	1.19	11	10.1	nw.	60	s.	8	13	11	7	4.8	.0	.0	10
Devils Lake	1,478	11	44	959.7	1,012.2	−1.7	65.5	+.7	89	2	76	42	23	55	32	75	54	72	6.55	+4.1	1.41	12	7.8	se.	26	ne.	3	8	10	13	6.2	.0	.0	8
Grand Forks [1]	832	4	41	981.7	1,011.9	.....	66.4	.....	93	2	78	39	23	54	38	72	56	....	12.73	.....	5.12	15	....	s.	....	....	....	8	10	13	....	.0	.0	10
Lemmon, S. Dak	2,602	6	30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Williston	1,878	42	50	945.8	1,011.2	−2.3	65.6	−.5	90	7	77	44	17	54	37	60	52	66	2.35	+.9	1.56	12	6.9	se.	35	w.	9	10	13	8	5.1	.0	.0	9
Upper Mississippi							73.9	+1.3										72	4.62	+0.7											5.2			
Minneapolis-St. Paul [1]	919	43	74	980.0	1,012.9	−2.0	71.6	+1.7	94	9	82	51	28	62	32	24	60	71	3.65	+.5	1.98	10	10.7	se.	40	sw.	3	12	11	8	5.1	.0	.0	7
Springfield, Minn.	1,025	4	42	976.3	1,012.9	.....	70.7	.....	98	9	81	47	28	60	35	38	60	75	3.89	.....	1.14	14	....	se.	....	....	....	12	9	10	....	.0	.0	8
La Crosse [1]	714	5	29	988.2	1,013.9	−1.3	71.0	+1.6	96	10	82	47	25	60	34	17	60	75	3.94	+.2	2.01	8	7.9	s.	56	sw.	15	11	10	10	5.2	.0	.0	6
Madison [3]	974	70	78	980.0	1,015.2	−.4	71.9	+2.1	94	10	81	55	25	63	27	11	58	69	2.49	−.7	1.03	9	7.1	sw.	26	sw.	15	10	12	9	5.0	.0	.0	4
Charles City	1,015	10	51	978.3	1,014.6	−.3	70.5	+1.4	94	10	80	49	24	61	29	26	....	....	5.90	+2.4	2.61	9	5.8	se.	21	nw.	15	18	5	8	4.0	.0	.0	6
Davenport [1]	606	6	50	992.9	1,014.9	−.3	73.4	+1.7	98	10	84	51	24	63	34	8	62	72	2.88	−.6	.92	8	7.8	e.	26	sw.	31	10	14	7	5.6	.0	.0	4
Des Moines [3]	860	5	99	983.1	1,013.5	−1.4	73.3	+.2	98	13	83	53	26	64	30	25	62	76	4.80	+1.3	2.36	11	8.2	se.	32	w.	4	13	8	10	5.0	.0	.0	7
Dubuque	699	81	96	989.5	1,014.6	−.6	72.9	+1.2	94	10	83	53	25	63	27	7	61	70	4.52	+1.3	1.57	9	4.8	s.	17	n.	17	11	10	10	5.1	.0	.0	7
Burlington [1]	702	4	36	989.5	1,014.6	−.6	74.0	.0	100	10	86	54	26	62	34	13	62	72	6.25	+2.7	2.55	10	8.3	se.	34	nw.	15	8	14	9	5.7	.0	.0	7
Cairo	357	5	99	1,002.4	1,015.2	−.4	79.2	+.4	98	9	88	59	28	70	28	0	....	....	4.40	+1.4	2.66	9	6.7	s.	27	se.	16	8	13	10	5.7	.0	.0	8
Peoria [1]	609	6	26	993.6	1,015.2	−.4	73.8	+2.3	97	10	84	54	24	63	34	10	62	72	2.86	−.3	1.15	7	7.5	sw.	30	w.	15	9	10	12	5.6	.0	.0	7
Springfield, Ill. [3]	636	5	191	992.2	1,014.6	−1.0	77.0	+2.5	100	11	87	56	26	67	29	7	62	72	4.11	+.9	1.89	6	9.9	s.	29	se.	26	9	13	9	5.5	.0	.0	3
St. Louis [5]	568	6	303	994.6	1,014.6	−1.0	78.2	+.7	98	11	86	58	26	70	25	6	62	66	2.46	−.5	1.03	9	10.5	s.	27	sw.	30	11	11	9	5.3	.0	.0	5
Missouri Valley							74.3	+0.2										74	6.17	+2.8											5.2			
Columbia, Mo. [3]	784	6	66	986.5	1,014.2	−.7	75.2	−1.1	97	15	84	55	28	66	26	10	64	76	8.39	+4.8	3.10	13	6.6	s.	21	ne.	4	8	15	8	5.2	.0	.0	8
Kansas City [1]	963	38	76	979.0	1,012.5	−2.4	76.5	−.1	101	3	86	54	28	68	35	4	64	71	7.97	+4.4	2.06	12	9.6	se.	37	nw.	16	8	13	10	5.5	.0	.0	12
St. Joseph [5]	967	11	49	979.0	1,012.9	.....	74.6	−1.9	98	10	84	50	28	66	28	15	66	77	11.54	+7.7	4.05	15	8.0	se.	33	nw.	15	14	9	8	4.3	.0	.0	9
Springfield, Mo. [1]	1,324	5	60	968.2	1,014.6	−.3	74.2	−.8	93	10	84	52	28	65	29	8	66	81	6.65	+2.6	1.95	15	9.6	se.	41	n.	12	8	11	12	5.8	.0	.0	16
Topeka	987	65	87	978.0	1,012.5	.....	77.6	+1.4	104	10	86	56	28	68	31	2	66	72	6.93	+2.8	2.29	12	8.8	se.	34	nw.	16	9	12	10	5.5	.0	.0	12
Lincoln [3]	1,189	11	81	970.5	1,012.2	−2.0	76.0	+1.6	102	10	86	51	28	66	35	15	62	72	5.74	+2.2	2.55	12	9.1	se.	25	n.	11	9	15	7	5.0	.0	.0	12
Omaha [1]	1,105	5	68	973.9	1,012.9	−1.7	74.3	+1.1	100	10	84	48	28	65	32	19	64	75	4.93	+1.9	1.79	10	11.1	se.	57	n.	1	10	12	9	5.0	.0	.0	9
Valentine	2,598	46	54	922.1	1,012.2	−1.7	72.4	+.7	102	8	85	48	31	60	38	15	56	64	1.66	−.5	.74	6	10.0	s.	30	nw.	3	15	8	8	4.6	.0	.0	9
Sioux City [1]	1,138	5	40	972.6	1,012.5	−1.7	71.9	+.8	97	9	82	46	28	61	36	31	63	76	4.17	+1.0	1.47	12	9.9	s.	35	ne.	1	11	10	10	5.3	.0	.0	9
Huron [1]	1,301	5	41	966.1	1,012.2	−2.0	70.2	+.8	100	12	82	43	27	58	41	36	60	76	3.72	+1.3	1.57	12	12.1	se.	42	se.	14	7	17	7	5.4	.0	.0	12

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
	Ft.	*Ft.*	*Ft.*	*Mbs.*	*Mbs.*	*Mbs.*	*°F*	*°F*	*°F*		*°F*	*°F*		*°F*	*°F*		*°F*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
Northern Slope							67.0	+0.3										55	0.85	−0.3											4.1			
Billings [1]	3,370	16	40	890.6	1,011.9	----	67.8	−2.8	94	6	81	43	15	54	40	30	44	49	.97	----	.64	7	10.5	sw.	45	n.	22	20	7	4	3.4	.0	.0	5
Havre	2,507	11	67	925.2	1,012.5	−.4	65.6	+.2	94	5	79	42	15	52	39	52	47	58	1.60	+.4	.79	11	7.7	sw.	32	w.	9	13	8	10	5.0	.0	.0	7
Helena [1]	4,124	5	43	873.7	1,013.2	−.7	52.4	−2.2	86	11	76	40	15	48	43	102	46	61	1.62	+.8	.67	13	7.9	w.	32	nw.	28	14	8	9	4.7	.0	.0	10
Missoula [2]	3,205	80	91	901.5	1,013.5	----	65.4	−.2	92	5	80	43	26	50	41	50	44	56	1.43	+.5	1.26	6	6.5	e.	32	n.	28	16	8	7	4.2	.0	.0	9
Kalispell	2,973	48	56	910.6	1,012.2	−1.3	62.2	−.6	86	5	76	42	20	49	37	104	43	56	1.34	+.5	.76	10	6.2	w.	27	sw.	31	14	12	5	4.5	.0	.0	7
Miles City [1]	2,371	5	28	929.2	1,011.9	−1.6	67.8	----	94	6	82	42	31	54	40	38	51	60	2.09	----	.68	11	----	nw.	----	----	----	13	12	6	4.5	.0	.0	12
Rapid City [1]	3,259	5	63	900.4	1,011.9	−1.6	69.8	+.3	103	8	84	44	17	56	40	27	50	56	.45	−1.2	.38	5	14.8	nw.	57	s.	8	12	14	5	4.3	.0	.0	8
Cheyenne [1]	6,094	5	40	814.8	1,011.2	−2.0	68.1	+2.5	94	7	84	37	31	52	43	37	41	46	.03	−1.5	.02	2	9.8	nw.	30	nw.	14	12	15	4	4.2	.0	.0	9
Lander	5,352	60	68	835.4	1,010.8	−2.4	66.6	+1.1	90	7	84	42	30	50	42	32	40	44	T	−.5	T	0	5.7	sw.	27	w.	28	22	8	1	2.2	.0	.0	1
Sheridan [1]	3,790	5	38	883.8	1,012.2	----	67.5	+1.0	97	6	83	42	31	52	46	34	46	53	.42	−.5	.30	3	8.0	nw.	42	nw.	25	18	10	3	3.5	.0	.0	4
North Platte [3]	2,821	11	51	915.0	1,010.8	−3.1	74.6	+3.8	99	13	87	46	31	63	36	1	58	66	.78	−1.6	.36	5	8.0	se.	28	sw.	2	13	14	4	4.4	.0	.0	16
Middle Slope							78.2	+1.7										62	3.84	+1.2											4.6			
Denver [3]	5,292	105	113	838.5	1,010.8	−2.4	73.7	+3.0	96	2	86	47	31	61	34	12	42	44	.96	−.5	.95	2	6.7	s.	25	nw.	26	11	14	6	4.4	.0	.0	5
Pueblo [1]	4,690	5	36	857.1	1,010.8	−2.1	73.4	+.7	100	2	89	43	30	58	42	10	49	54	1.13	−.7	.40	6	7.6	nw.	42	ne.	26	16	9	6	4.2	.0	.0	12
Concordia	1,392	50	58	963.4	1,011.9	−2.3	77.6	+1.1	104	13	88	54	31	67	31	3	63	68	8.00	+5.1	2.80	10	7.8	se.	26	sw.	16	13	10	8	4.8	.0	.0	8
Dodge City [1]	2,509	5	58	925.5	1,010.2	−3.3	77.8	+.1	101	13	91	51	31	64	34	0	62	66	5.11	+2.4	1.49	11	14.2	s.	65	nw.	29	18	6	7	4.1	.0	.0	14
Wichita [1]	1,358	6	64	964.8	1,011.9	−2.3	79.6	+1.3	104	4	90	58	27	69	32	0	64	67	4.77	+1.6	1.90	13	14.0	s.	43	w.	20	11	11	9	5.2	.0	.0	12
Oklahoma City [2]	1,214	10	47	969.9	1,011.5	−2.4	83.6	+3.9	103	11	95	59	27	73	29	0	65	62	1.97	−.9	.72	6	8.8	s.	20	sw.	5	16	5	10	4.4	.0	.0	4
Tulsa [1]	674	10	61	988.8	1,012.5	----	81.8	+1.7	102	13	93	59	28	71	29	0	68	70	4.94	+1.7	2.24	9	10.4	s.	51	nw.	6	13	8	10	4.9	.0	.0	10
Southern Slope							81.6	+2.7										58	2.88	+0.6											4.5			
Abilene [1]	1,738	4	41	952.3	1,011.2	−2.0	83.3	+3.0	105	2	95	57	31	72	28	0	64	60	2.11	−.1	.93	6	11.8	s.	31	ne.	30	14	7	10	4.6	.0	.0	3
Amarillo [1]	3,676	5	42	888.9	1,010.5	−2.7	79.0	+4.4	106	3	92	53	28	66	36	1	57	56	1.40	−1.7	.50	8	14.5	s.	52	s.	14	14	10	7	4.8	.0	.0	11
Del Rio	960	63	71	978.3	1,010.5	−2.0	85.2	+1.0	102	3	95	64	31	76	24	0	66	62	4.19	+2.5	1.49	9	9.9	se.	27	e.	5	17	6	8	4.6	.0	.0	5
Roswell	3,566	75	85	892.3	1,010.8	−1.1	79.0	+2.4	105	3	92	54	31	66	35	0	57	54	3.83	+1.7	3.38	7	7.9	s.	37	ne.	11	14	14	3	4.1	.0	.0	9
Southern Plateau							82.2	+2.4										45	0.84	−0.8											3.4			
El Paso [1]	3,778	5	85	885.5	1,008.8	−1.7	80.0	+2.0	103	1	92	60	24	68	33	0	57	52	1.04	−.7	.55	6	9.0	se.	40	s.	14	14	11	6	4.2	.0	.0	8
Albuquerque [1]	5,314	5	48	839.1	1,009.5	----	76.3	+2.4	100	4	89	53	26	63	37	0	52	50	1.44	+.2	.66	7	9.3	se.	49	s.	3	14	13	4	4.1	.0	.0	11
Flagstaff	6,907	36	51	794.1	1,014.6	----	67.5	+3.5	92	12	84	42	29	50	46	6	40	46	.67	−2.1	.42	5	----	nw.	----	----	----	17	12	2	----	.0	.0	6
Phoenix [3]	1,107	39	87	969.2	1,005.8	−3.0	91.0	+2.5	113	4	105	71	30	77	41	0	56	38	.09	−.9	.09	2	6.7	e.	29	e.	23	22	5	4	3.0	.0	.0	3
Tucson [1]	2,555	6	30	923.1	1,007.5	----	86.4	+2.2	109	4	99	66	16	74	33	0	58	46	1.78	−.6	.91	7	----	se.	----	----	----	14	10	7	4.3	.0	.0	11
Yuma	142	9	54	1,001.4	1,005.4	−2.4	92.0	+1.6	115	4	108	68	27	76	47	0	56	40	.00	−.5	.00	0	5.8	s.	20	se.	8	28	3	0	1.4	.0	.0	0
Middle Plateau							71.2	+0.4										31	0.01	−0.7											1.6			
Reno [1]	4,527	20	52	862.5	1,012.9	+2.4	66.0	+.3	102	12	90	33	24	42	56	39	35	44	.00	−.2	.00	0	6.8	w.	34	w.	31	30	1	0	0.8	.0	.0	0
Tonopah	6,090	9	20	815.1	1,010.5	----	72.8	+.8	94	13	86	52	2	60	32	0	24	17	T	−.6	T	0	----	nw.	----	----	----	30	1	0	----	.0	.0	0
Winnemucca	4,339	5	56	866.9	1,011.2	−.7	68.5	−.8	97	5	90	39	25	47	51	7	30	29	T	−.2	T	0	7.0	sw.	30	sw.	31	29	2	0	.8	.0	.0	0
Modena	5,473	10	46	834.1	1,009.8	−1.4	69.2	.0	95	13	88	40	28	50	52	5	----	----	T	−1.3	T	0	11.4	sw.	34	sw.	1	29	2	0	1.3	.0	.0	0
Salt Lake City [1]	4,227	32	46	866.2	1,009.8	−3.1	73.8	+1.0	98	6	90	47	26	58	43	2	37	30	T	−.9	T	0	10.8	se.	33	s.	1	26	5	0	1.9	.0	.0	1
Grand Junction	4,602	60	68	859.1	1,011.2	−1.3	76.6	+1.2	98	14	91	52	26	62	36	0	40	34	.10	−1.1	.06	4	6.7	se.	26	sw.	15	20	9	2	3.2	.0	.0	8
Northern Plateau							69.9	−0.1										42	0.20	−0.2											2.5			
Baker [3]	3,471	36	54	895.4	1,013.9	−.3	64.0	−.6	93	5	82	39	19	46	48	73	38	53	T	−.5	T	0	5.8	n.	17	n.	28	21	10	0	2.6	.0	.0	4
Boise [1]	2,739	5	49	917.7	1,011.5	−2.0	70.7	−.3	99	5	87	47	25	54	39	1	39	36	T	−.2	T	0	9.1	nw.	26	nw.	28	28	3	0	1.5	.0	.0	0
Pocatello [1]	4,478	5	31	861.8	1,011.2	−2.0	68.1	−.8	95	5	87	42	4	49	51	12	33	32	.00	−.5	.00	0	9.8	sw.	35	w.	28	28	3	0	1.1	.0	.0	1
Spokane [1]	1,929	27	42	945.1	1,012.9	−1.3	66.8	−1.3	93	5	81	43	20	52	39	29	44	49	1.02	+.4	.56	3	7.0	sw.	26	sw.	12	16	12	3	3.8	.0	.0	4
Walla Walla	991	57	65	978.0	1,012.9	−1.7	72.8	+.1	96	30	85	52	19	60	37	0	----	----	.16	−.3	.15	3	6.7	sw.	21	sw.	12	23	6	2	2.7	.0	.0	1
Yakima	1,076	58	67	974.9	1,013.2	----	71.6	+2.1	95	11	85	49	19	58	37	1	----	----	.01	−.2	.01	1	7.0	nw.	22	nw.	5	20	6	5	3.5	.0	.0	0
North Pacific Coast							63.8	+0.1										73	0.58	−0.2											5.6			
North Head	211	5	56	1,010.8	1,017.6	+.7	59.0	+1.4	93	29	64	52	20	54	40	193	56	90	1.13	+.1	.42	14	11.6	n.	30	n.	19	5	5	21	7.6	.0	.0	1
Seattle [2]	125	90	321	1,012.5	1,016.6	+.7	64.5	−.6	95	30	73	52	22	56	33	56	54	72	.48	−.2	.18	9	7.7	s.	22	sw.	25	9	8	14	6.2	.0	.0	0
Tacoma	194	172	201	1,010.2	1,016.3	+.4	63.3	+.7	89	30	71	48	19	55	29	75	----	----	.92	+.2	.44	8	7.8	n.	25	w.	30	10	9	12	5.4	.0	.0	0
Tatoosh Island	86	9	61	1,014.9	1,017.6	+1.7	55.2	−.1	78	30	59	48	20	52	25	300	53	94	1.17	−.8	.24	15	10.9	s.	41	e.	30	1	8	22	8.3	.0	.0	0
Medford [1]	1,329	29	58	967.8	1,013.9	----	69.8	−1.3	102	29	87	45	25	52	50	10	46	51	.31	+.1	.20	2	----	nw.	----	----	----	21	8	2	2.5	.0	.0	1
Portland, Oreg. [2]	154	68	106	1,011.2	1,016.6	+.3	67.6	+.9	94	29	77	51	19	58	32	20	54	69	.07	−.6	.05	3	6.3	nw.	18	ne.	29	15	7	9	5.1	.0	.0	0
Roseburg	510	45	76	998.0	1,015.9	.0	67.5	−.5	101	29	82	47	19	53	49	19	50	61	T	−.3	T	0	4.3	n.	15	n.	28	18	7	6	3.8	.0	.0	1
Middle Pacific Coast							63.5	+0.8										62	0.07	0.0											3.2			
Eureka	60	72	88	1,015.2	1,017.3	+1.4	56.8	+.8	68	30	61	49	10	52	16	253	52	86	.19	.0	.17	3	6.2	n.	18	nw.	5	4	14	13	6.7	.0	.0	0
Red Bluff [1]	----	----	----	----	----	----	80.7	----	110	12	98	57	24	64	46	0	41	29	T	----	T	0	7.2	s.	----	----	----	29	2	0	1.2	.0	.0	0
Sacramento	66	92	115	1,008.8	1,010.5	−.3	74.7	+1.8	105	27	92	53	21	58	44	0	49	51	.00	.0	.00	0	7.4	s.	20	s.	1	30	1	0	.5	.0	.0	0
San Francisco [3]	155	112	132	1,008.1	1,013.2	.0	58.9	−.2	83	26	65	50	28	53	30	191	52	82	.02	.0	.02	1	10.5	w.	28	w.	7	10	16	5	4.6	.0	.0	0
South Pacific Coast							73.2	−0.3										60	T	0.0											1.9			
Fresno [1]	327	5	35	998.6	1,009.5	−.3	78.8	−.7	106	27	97	55	3	61	42	0	44	38	.00	.0	.00	0	6.8	nw	20	nw.	31	31	0	0	.6	.0	.0	0
Los Angeles	338	223	250	999.7	1,011.2	−.7	71.3	+.2	93	29	82	56	3	60	31	0	57	67	T	.0	T	0	5.3	w.	18	w.	29	27	4	0	1.5	.0	.0	0
San Diego [1]	87	20	55	1,008.5	1,011.2	−1.0	69.4	−.4	85	29	77	57	7	62	22	2	60	76	T	.0	T	0	6.6	w.	17	w.	28	22	8	1	3.5	.0	.0	0
West Indies																																		
San Juan, P. R.	82	10	54	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Panama Canal																																		
Balboa Heights	118	6	92	----	1,010.5 [4]	+.3	80.1	−0.3	91	26	87	71	23	73	19	---	75	88	14.47	+6.6	----	23	4.8	nw.	28	s.	22	0	13	18	7.5	.0	.0	9
Cristobal	27	47	97	----	1,010.5 [4]	.0	80.7	----0	91	23	86	74	23	76	17	---	75	85	18.40	+3.0	----	27	6.1	s.	22	ne.	5	0	6	25	8.6	.0	.0	16

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
Alaska	*Ft.*	*Ft.*	*Ft.*	*Mbs.*	*Mbs.*	*Mbs.*	°*F*	°*F*	°*F*		°*F*	°*F*		°*F*	°*F*		°*F*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
Anchorage [1]	132	6	44	1,006.8	1,011.5		55.4	−0.2	73	2	64	40	30	47	31		48	78	4.01	+1.4		19	6.6	s.	28	s.	7	4	6	21	7.5	.0	.0	0
Fairbanks [1]	455	4	63	992.9	1,009.8		52.6	−2.5	73	3	63	32	11	42	41		46	79	2.81	+.7		15	7.5	sw.	29	w.	5	4	4	23	7.8	.0	.0	0
Juneau [1]	80	6	21	1,012.2	1,015.2		53.8		72	16	61	40	13	46	27		48	83	4.70			21	7.1	n.	27	e.	26	0	7	24	8.6	.0	.0	0
Nome	22	25	56	1,009.1	1,009.8		48.8	−.7	61	20	55	34	10	43	25		45	85	2.70	−.5		12	9.6	sw.	32	sw.	30	5	6	20	7.3	T	.0	0
Hawaii																																		
Honolulu	38	86	100	1,015.9	1,016.9		77.8	−.6	84	17	82	71	31	73	12	0			.92	−.4	.33	12	10.7	e.	28	ne.	10	16	10	5	3.9	.0	.0	0
Alaska																																		
Bethel	28	7	31	1,009.8	1,011.2		52.0	−.4	63	20	57	36	31	47	17		50	91	8.34	+4.2		28	10.4	s.	40		30	0	2	29	9.4	.0	.0	0
Gambell	32	5	32	1,009.8	1,010.8		44.1	−.5	55	10	48	33	8	40	17		40	88	1.61	−.4		14	14.0	ne.	36	n.	30	4	5	22	8.0	.0	.0	0
Ketchikan	75	69	90	1,015.2	1,015.9		57.6	−.8	71	23	63	48	20	53	21		52	84	9.20	−2.1		22	6.4	se.	21	s.	24	2	6	23	8.4	.0	.0	0
Kotzebue	20	5	31	1,008.8	1,009.5		48.4	−2.2	64	20	53	35	31	44	19		44	82	1.76	+.5		13		w.				2	7	22	8.0	.0	.0	0
McGrath	331	5	31	998.3	1,011.2		53.5		74	3	62	32	31	45	32		47	80	5.32	+2.0		23		s.	33	s.	30	3	4	24	7.9	.0	.0	0
Northway	1,718	5	32	949.2	1,011.9		52.3		71	22	62	36	10	43	30		44	73	6.42			13	6.4	nnw.	28		1	4	5	22	7.5	.0	.0	1
Summit	2,405	5	30	926.5	1,013.5		47.6		69	3	55	29	31	40	32		44	84	6.74			21		sw.				3	4	24	8.3	3.0	3.0	0

[1] Data are airport records.
[2] Barometric data (adjusted to old city elevation) and hygrometric data from airport; otherwise city office records.
[3] Observations taken hourly.
[4] Pressure (adjusted to old city elevation), temperature, and hygrometric data from airport; otherwise city office records.
[5] Temperature and precipitation from city records, other data from airport.

NOTE.—Except as indicated by notes [1], [3], [4], and [5] data in table are city office records.

SEVERE LOCAL STORMS, AUGUST 1944

[Compiled by Mary O. Souder]

[The table herewith contains such data as has been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	August						
Rockville, Ind	1	p. m.			$500	Wind	Trees and wires down; 6 persons injured by a falling tree.
Ainsworth, Nebr	2	3:30 p. m., C. W. T.	[1] 5			Heavy hail	Tops, fenders and windshields of cars damaged; path 15 miles long. Estimate in many thousands of dollars.
Dalton, Nebr	2	5:30–6:30 p. m., M. W. T.	[1] 2			Hail	Loss in small grains; corn stripped; gardens destroyed; windows broken; some loss in poultry; much property destroyed; path 25 miles long.
Hay Springs, Nebr	2	7 p. m., C. W. T.				do	Value of property destroyed considerable. Principal loss in corn and small grain; windows broken; roofs damaged.
Davis, S. Dak., west of	2	10:10 p. m.	880		14,000	Wind	West-southeast winds for a distance of 5 miles wrecked buildings valued at $10,000; crop loss, $4,000.
Montana, 8 counties	2	p. m.			1,000,000	Heavy hail and wind	Until this storm Montana farmers had anticipated a record crop year.
Malone, N. Y., vicinity of.	2				1,500	Electrical	2 barns burned; loss over $1,500.
Potsdam, N. Y.	2				4,000	do	Electric power service disrupted; 2 barns burned; damage over $4,000.
Becker, Hubbard, Otter Tail, Wadena, and Cass Counties, Minn.	3	7 p. m., C. W. T.	[1] 5		150,000	Thunderstorm and hail.	Crop loss, $125,000; property damage, $25,000.
Minnesota, central counties.	3	do		1	362,000	Thundersqualls and hail.	Several large commercial ice houses wrecked; plate glass windows blown in; rowboat on lake capsized; automobile blown off the road; radio towers, chimneys toppled; many barns, outbuildings and silos, and windmills demolished; poles and wires down; trees uprooted; thousands of turkeys and chickens killed; a number of persons injured, 1 fatally; growing crops lodged or otherwise damaged; shocks of grain shelled out, and haystacks scattered. General direction of the storm from northwest to southeast. There were several reports of rotary winds, but most observers reported straight winds. Uprooted trees lying on the ground were mostly in the same direction.
South Dakota, southeastern portion.	3	7–10 p. m.			200,000	Wind, rain and hail	Several hundred buildings and windmills wrecked; power and telephone lines down; trees uprooted, some stock killed, and crops flattened.
Fairmont, Minn	3	10 p. m., C. W. T.			2,500	Electrical	Large barn struck by lightning and burned.
Harrisburg, Nebr	5	4 p. m., M. W. T.	[1] 1		10,000	Hail and wind	Principal crop loss in oats and barley. Gardens and corn stripped, and a granary lifted over the fence by the wind and destroyed; path 6 miles long.
Del Norte, Colo	5				16,500	Hail	132 acres of various produce crops damaged or destroyed.
Broken Arrow, Okla	7	7 a. m.			60,000	Electrical	A stable, 15 show horses, and equipment burned.
Electra, Tex	7	5 p. m.	[1] 1			Wind	About 20 farm residences damaged and utility lines blown down.
Carthage, Tex	7	5:30 p. m.	[1] 1		80,000	do	Rain damage to unroofed buildings; at least 45 farm homes blown from their foundations.
Elizabeth, Pa	7				18,000	Electrical	Barn burned.
Sebeka, Minn., and vicinity.	7	P. m.				Rain and flood	Heavy to excessive rains in connection with a severe thunderstorm resulted in a flash flood in the Red Eye River. Some farm lands flooded; several houses in Sebeka isolated and highway was under water in several places.
Polk, Norman, Red Lake, and Marshall counties, Minn.	8	7:30 p. m., C. W. T.	[1] 15		47,000	Hail	Loss in crops, $47,000; some property damage not estimated; path 60 miles long.
Cottonwood, Idaho, vicinity of.	8	7:30–7:45 p. m., M. W. T.	[1] 5–6		60,000	Moderate hail	Small loss in wheat; considerable loss in peas, barley, and oats.

[1] Miles instead of yards.

SEVERE LOCAL STORMS, AUGUST 1944—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Polk, Norman, Red Lake, and Marshall counties, Minn.	8	7:30-11 p. m., C. W. T.	[1] 10	0	277,000	Thundersqualls, possibly small tornado.	About 50 barns, outbuildings, garages, silos, and windmills wrecked; farm and city residences and buildings damaged; windows broken; poles and wires down; hundreds of trees uprooted; growing crops lodged or damaged; grain shocks and haystacks scattered. Storm moved from northwest to southeast over a path about 60 miles long.
Montana, eastern portion	9		[1] 20			Hail	About 2,500,000 bushels of grain destroyed; livestock and poultry injured. Farmers anticipated a record yield of 40 bushels to the acre before the storm wiped out entire fields. Path 100 miles long.
International Falls, Minn., and vicinity.	9-10	5:45 p. m.-12:30 a. m., C. W. T.			60,000	Electrical and heavy rain.	Barn destroyed and a house slightly damaged by lightning. Heavy to excessive rains flooded basements, damaged property; and caused loss in gardens.
Chouteau County, Mont.	11				400,000	Hail	Greatest damage to crops in the vicinity of Geraldine section. Here the path of the storm was from 5-15 miles wide. Wheat that had been harvested ran from 35 to 50 bushels per acre.
Theresa, N. Y., vicinity of.	12				4,000	Electrical	Barn burned.
Osceola County, Iowa	13	5 p. m.	[1] 3		60,000	Hail and wind	Principal loss in corn and soybeans. Property damaged, $10,000; loss in crops about $50,000; path 5 miles long.
Chambersburg, Pa.	13	6 p. m.			15,200	Electrical and wind	Lightning caused 4 fires and damaged property; trees and wires down; barn unroofed.
Bancroft and Titonka, Iowa, and vicinities.	13	7 p. m.	[1] 3		50,000	Wind and hail	Property damaged; path about 10 miles long.
Scotts Bluff County, Nebr., small spotted areas.	14	4:40 p. m., M. W. T.	2,640		100,000	do	Loss in crops; path 20 miles long.
Broadwater and Northport, Nebr., and vicinity.	14	5:30 p. m., M. W. T.	[1] 7		180,000	Tornadic wind and hail.	Storm moved from west to east. Principal loss in corn, beets, beans, and potatoes. About $5,000 damage to buildings from wind; path 12 miles long.
Johnstown and Atkinson, Nebr., and vicinity.	14	9:30 p. m. M. W. T.	[1] 8		10,000	Windsquall	Crop loss, $5,000; property damage, $5,000.
Worthington, Minn., vicinity of.	15	3:30 a. m., C. W. T.			7,000	Electrical and hail	Barn, granary and sheds burned, loss, $5,000; crop loss from hail in Nobles County, $2,000.
Cerro Gordo and Floyd Counties, Iowa.	15	12:30 p. m.			20,000	Wind and hail	2 barns wrecked; trees, wires, and small buildings damaged; path about 8 miles long.
Chickasaw County, Iowa	15	12:50 p. m.	209	0	4,000	Tornado and wind	Strong wind occurred outside the tornado track. The path was 5 miles long and parallel to the one in Cerro Gordo County.
Elsie Chapel, Kans., vicinity of.	15	6-7 p. m., C. W. T.	880			Heavy hail	Roofs damaged, windows broken, and feed crops beaten into ground. Path 1 mile long.
Ford, Kans., and vicinity.	15	7 p. m.	[1] 3		10,000	do	Many windows broken; row crops beaten into ground; path 8 miles long.
Nemaha County, Kans.	15	7:30 p. m.	[1] 4		40,000	Wind and hail	Many barns and farm buildings damaged or wrecked. Storm had tornadic characteristics; chief damage from wind; path 20 miles long.
Vernon, La Crosse, Monroe, Jackson, Wood, Portage, Waupaca, Waushara, Winnebago, Outagamie and Brown Counties, Wis.	15			2	925,000	Thunderstorm, heavy rain, and straight-line winds.	In Junction City a large warehouse, a new cold storage locker, and the city meat market were unroofed. In the whole area 41 barns were wrecked, approximately 35 buildings damaged, 140 shade trees destroyed and about 1,000 damaged. The largest single loss was a coal unloading bridge at Green Bay. The structure collapsed fatally injuring the man operating the bridge. A woman was fatally injured when struck by a piece of plank ripped from a pier. 5 persons injured and in addition to barns, many silos and smaller farm buildings were blown down. Considerable corn lodged, but final production not greatly affected.
Wisconsin central portion	15				16,000	Electrical	4 barns and contents and several livestock burned.
Howard, S. Dak., vicinity of.	16	12:30 p. m.			15,000	Hail	Serious loss in spots to crops.
Pipestone and Nobles Counties, Minn.	16	2:15 - 3:25 p. m., C. W. T.	[1] 4		33,000	Hail and thunderstorm.	Much damage to growing crops and some loss in real property and poultry. Storm moved northwest to southeast over a path about 60 miles long.
Cerro Gordo County, Iowa.	16	6-8 p. m.	[1] 1		50,000	do	Loss in corn and soybeans; some buckwheat destroyed. Loss in Mason City mostly to gardens.
Gorham, Kans., 8 miles north.	16	7 p. m.		0	15,000	Tornado and hail	A residence, several farm buildings, and 2 oil derricks blown down. Hail followed tornado, but its damage was small. Path narrow and a mile long.
Floyd County, Iowa	16	8:15 p. m.	[1] 2		25,000	Hail, electrical	Property damaged; barn burned.
Fayette County, Iowa	16	9:30 p. m.	[1] 2			Hail	Windows broken; roofs damaged; 70 percent of crops lost; 200 chickens killed; path 6 miles long. This reported to have been a redevelopment of the Cerro Gordo-Floyd County storm.
Delaware County, Iowa	16	10 p. m.	[1] 2		50,000-100,000	Hail and wind	Path stretched almost completely across the county extending from northwest to southeast for about 7 miles, then due east for about 18 miles. Loss in crops. North of Hopkinton, near the end of the storm track, farm buildings were blown down.
Benton and Linn Counties, Iowa.	16	11 p. m.	880		125,000	Wind, hail, tornadic	Much hail damage; a silo blown over and several barns damaged near Vinton and Urbana. Many trees down; in Center Point electric and telephone service was completely cut off.
Denver, Colo.	16	P. m.			500	Hail	Loss in vegetable crops and gardens.
Jackson County, Iowa	17	12:30 a. m.	440	0	25,000	Tornado	Storm struck in the rural areas northwest of Maquoketa and traveled almost due east across the northern part of that town. In the open country, many farm buildings were damaged or destroyed. Trees and wires down.
Massachusetts, Boston and eastern portion of State.	17	P. m.				Electrical and torrential rains.	This reported to have been one of the worst electrical storms in recent years. Houses struck by lighting; trees felled and streets flooded following the most prolonged heat wave in history. Thousands of homeward bound workers were marooned or drenched. Fire department answered about 100 calls in the greater Boston area.
Oswego County, N. Y.	17				4,500	Electrical and wind	Trees uprooted; power and communication lines broken; barn burned.
Paxton and Ogallala, Nebr., and vicinities.	19	8-9 p. m., M. W. T.	[1] 4		35,000	Heavy hail	Loss in crops and gardens. A barn 5 miles north of Paxton struck by lightning and one end torn out without causing fire.
Keya Paha County, Nebr., western half, into Rock County.	21	6 and 7:30 p. m., C. W. T.	[1] 8		115,000	do	Loss in crops, $100,000; damage to buildings and loss in livestock, $15,000. Storm reported to have been the worst one in 50 years. Path 22 miles long.
Spring Lake, Minn., vicinity of.	21				2,200	Electrical	17 cattle, huddled beneath a tree, killed by lightning.
Cheyenne, Sherman, and Thomas Counties, Kans.	23	7 p. m.	[1] 2		100,000	Heavy hail	Most severe damage in Cheyenne County, where all vegetables were destroyed in the storm's path which was 55 miles long.

[1] Miles instead of yards.

SEVERE LOCAL STORMS, AUGUST 1944—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Sanford to Springfield, Kans.	22	8–10 p. m.	[1] 10		5,000	Heavy hail and wind	Considerable crop damage from hail; several farm buildings demolished; path 25 miles long.
Morrill and Mitchell, Nebr., vicinities of.	22	Near midnight	[1] 3		200,000	Hail and rain	Loss in potatoes, sugar beets, and beans; small crop damage; some washing from heavy rain; path 10 miles long.
Hattiesburg, Miss.	24	6:15 p. m.	100		4,000	Wind	No details.
Denver, Colo.	26	2–2:30 p. m.			1,000,000	Rain and hail	Scattered light to heavy hail over sections of the city, broke greenhouses to the extent of 20 carloads of glass, shredded trees and vegetable crops. Underpasses were flooded. Several persons rescued from stranded and flooded automobiles. This considered one of the worst hailstorms in this vicinity in a decade. The American Red Cross Authorized War Agency offered almost blanket authority for critical materials needed for repairs and replacements.
Colorado Springs, Colo.	26	3 p. m.	[1] 3		500	Hail	Moderate hail caused loss in vegetable crops and gardens; path 80 miles long.
Morton and Stevens Counties, Kans.	29	5–6:30 p. m., C. W. T.	[1] 3–4		200,000	Heavy hail	Much damage to broom corn and other crops; path 50 miles long.
Kansas, southwest portion of State, east of Hutchinson.	29					High wind	Number of trees blown down; many shade trees and some power lines damaged.
Detroit Lakes, Minn.	30				5,000	Electrical	2 homes destroyed by fire.

[1] Miles instead of yards.

SOLAR RADIATION AND SUNSPOT DATA FOR AUGUST 1944

[Solar Radiation Investigations Section, I. F. HAND, in charge]

SOLAR RADIATION OBSERVATIONS

EXPLANATIONS of the tables and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, and also a list of pyrheliometric stations are given in the REVIEW for January 1944, page 43.

TABLE 1.—*Solar radiation intensities during August 1944*

[Gram-calories per minute per square centimeter of normal surface]

MADISON, WIS.

Date	Sun's zenith distance									
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass									Local mean solar time
		A. M.					P. M.				
	e	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e
August:	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
2	20.3			0.34	0.61	0.98					25.0
5	21.8	0.54	0.60	.68	.95						22.6
7	14.2	.41	.50	.69	.90	1.22					15.8
8	14.8	.55	.62	.73	.92	1.20	1.07				15.8
9	16.5	.47	.58	.64	.92	1.26					13.7
10	17.0	.41	.52	.68	.88	1.08					19.6
11	25.9					1.15					25.9
12	14.8	.79	.88	1.01	1.15	1.41					14.8
18	11.3			.95	1.03	1.41					9.8
19	13.7		.58	.71	.94	1.18					12.7
24	11.8		.79	.94	1.11	1.34					12.3
31	14.8	.62	.86	1.01	1.14	1.35					12.7
Means		.54	.66	.76	.96	1.23	(1.07)				
Departures		−.13	−.11	−.14	−.11	−.08	+.02				

LINCOLN, NEBR.

August:											
1	24.2					1.28	1.12				25.9
2	24.2					1.29	0.94	0.73	0.58	0.45	27.7
3	20.4					1.29	.94	.73	.58	.47	28.6
8	23.4					1.26	.97	.75	.58	.45	19.6
9	25.9				1.01	1.26	1.01	.79	.64	.54	21.8
10	20.4				1.01	1.29					20.4
11	20.4				1.01	1.25	1.10	.94	.84	.75	20.4
12	14.2				1.12	1.39	1.10	.92	.79		13.7
14	18.3					1.25	.94	.73	.58	.50	21.8
16	21.8				1.23						23.4
18	13.2				1.12	1.33	1.08	.88	.75	.64	15.3
28	11.8					1.35	1.08	.86	.69	.54	18.3
31	11.4			1.07	1.23	1.45	1.25	1.08	.94	.84	12.7
Means				(1.07)	1.10	1.31	1.05	.84	.70	.58	
Departures				+.16	+.01	0	−.01	−.03	−.04	−.05	

*Extrapolated.

TABLE 1.—*Solar Radiation intensities during August 1944*—Con.

ALBUQUERQUE, N. MEX.

[Gram-calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance									
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass									Local mean solar time
		A. M.					P. M.				
	e	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e
August:	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
1	7.9					1.45					7.9
2	11.0		0.70	0.83	1.04	1.40		1.04			11.0
3	9.8				1.06	1.34					9.1
4	7.3		.86	.96	1.11	1.27	1.18				9.1
6	12.2				1.07	1.43					13.6
7	11.0				1.05	1.37	1.21	1.08	1.02	0.95	13.1
8	12.2	0.95	.99	1.07	1.22						12.2
12	12.2				1.04	1.46	1.26		1.11		11.8
13	11.8	.74	.87	.99	1.16						9.5
14	5.4	.86	.96	1.08	1.20	1.43		.95	.87	.74	7.9
16	10.6				1.17	1.43		1.16			9.8
19	13.6					1.46					13.6
20	11.4					1.39	1.24	1.12	1.04	.96	12.2
21	10.2		.88	1.00	1.16	1.45					12.6
25	12.2		.88	1.01	1.15	1.44					12.2
26	9.1					1.36	1.27	1.20	1.14	1.09	9.5
27	8.5			1.03	1.18	1.37	1.32				10.2
28	9.5		.86	.98	1.12	1.46	1.33	1.25	1.18	1.14	11.4
29	8.2			1.02	1.18	1.42	1.31	1.21	1.16	1.12	9.8
30	6.5				.98	1.56					6.8
31	5.4	.85	.96	1.07	1.22	1.48	1.34	1.22	1.18	1.15	7.9
Means		.85	.88	1.00	1.13	1.42	1.27	1.14	1.09	1.02	
Departures		+.05	+.01	−.01	−.02	+.01	+.06	+.09	+.13	+.12	

BLUE HILL, MASS.

August:											
4	21.1	0.51		0.73	0.95						22.6
5	24.2	.23	0.31	.40							26.8
8	14.7				1.26	1.50					15.3
9	11.8	.84	.99	1.13	1.28	1.47	1.20	1.05		0.83	9.1
11	19.6	.40	.51	.62	.82		.86		0.47	.36	17.6
12	20.3	.13	.70	.28	.45						19.6
13	25.0	.15	.22	.32	.57						23.4
14	27.7				.50						24.2
15	25.0				.80		.76		.38	.28	23.4
16	25.9				.71						23.4
17	24.2				.71						23.4
18	25.9						1.20	1.00	.89	.80	18.3
19	11.0	.87	.96	1.10	1.25	1.45			.89		11.4
20	10.2			1.15	1.28	1.47	1.18	.94	.80	.69	10.2
21	15.3	.60	.69	.81	.94		1.01	.78			19.0
22	19.0						.86	.68	.40	.27	21.8
25	11.8	.89	.98	1.08	1.20						9.8
26	11.0	.79	.89	1.02	1.19						11.0
27	12.3	.84	.93	1.05	1.18	1.46	1.22	1.05	.93	.85	11.4
28	11.8	.81	.91	1.03	1.18						13.2
30	14.2	.59	.69	.83	.96						14.2
31	15.3	.75	.84	.97	1.14						13.7
Means		.60	.74	.84	.97	1.47	1.04	.90	.68	.58	
Departures		−.05	−.04	−.04	−.07	+.17	0	+.05	−.01	−.02	

*Extrapolated.

TABLE 2.—*Daily Totals and Weekly Means of Solar Radiation (Direct+Diffuse) Received on a Horizontal Surface*

[Gram-calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Ithaca, N. Y.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	East Wareham, Mass.	Davis, Calif.	Boulder, Colo.
1944	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 30	334	669	520	496	497	698	420	571	305	532	478	590	485	480	518	527	681	541	720	548
July 31	541	662	644	574	385	711	220	658	552	555	400	631	613	664	511	562	646	560	727	681
Aug. 1	409	566	645	483	321	706	238	53	459	455	434	640	546	528	416	323	517	545	732	488
Aug. 2	22	546	614	450	134	727	(461)	530	265	621	583	680	320	491	284	574	629	356	713	568
Aug. 3	487	588	623	406	193	704	501	617	242	481	670	672	326	638	217	668	579	193	712	691
Aug. 4	601	397	460	390	540	671	201	514	509	487	601	645	633	418	579	481	456	585	705	622
Aug. 5	563	623	660	476	524	665	(311)	546	449	236	324	641	468	388	482	492	312	497	754	540
Mean	**423**	**574**	**595**	**469**	**371**	**697**	**316**	**498**	**397**	**481**	**498**	**643**	**485**	**516**	**430**	**518**	**546**	**468**	**723**	**591**
Departure	**−60**	**+53**	**+78**	**+11**	**−98**	**+33**	**−39**	-------	-------	**+43**	**−50**	**+81**	**−21**	**+10**	**−93**	**+20**	**+26**	**−14**	**+13**	-------
Aug. 6	227	351	597	386	402	685	235	633	344	525	317	668	327	551	196	519	401	143	688	449
Aug. 7	230	647	560	545	350	714	148	531	205	598	541	664	305	382	445	233	689	445	706	510
Aug. 8	558	623	636	607	590	687	260	637	571	617	458	662	651	617	550	620	629	584	715	667
Aug. 9	517	627	636	573	616	681	517	637	589	527	546	559	685	608	653	624	585	689	707	343
Aug. 10	599	609	567	511	520	649	418	628	472	586	592	596	600	544	586	556	594	602	701	670
Aug. 11	566	586	643	416	512	638	409	455	470	615	602	592	548	448	522	484	578	552	670	663
Aug. 12	505	609	654	573	420	636	518	625	416	505	594	603	520	385	451	521	458	494	658	689
Mean	**458**	**587**	**613**	**516**	**489**	**670**	**367**	**592**	**438**	**568**	**521**	**621**	**520**	**505**	**486**	**508**	**562**	**501**	**692**	**570**
Departure	**+5**	**+118**	**+119**	**+48**	**+61**	**+40**	**+40**	-------	-------	**+134**	**−8**	**+94**	**+25**	**+33**	**−10**	**+18**	**+52**	**+51**	**−1**	-------
Aug. 13	512	580	549	545	463	636	168	474	441	493	560	593	513	472	482	476	570	544	666	672
Aug. 14	586	628	613	390	483	647	161	395	311	414	650	600	432	242	542	413	583	536	666	442
Aug. 15	552	591	284	547	486	682	247	566	461	259	478	625	552	531	534	508	571	544	677	440
Aug. 16	484	287	518	208	370	669	159	427	378	440	570	612	482	372	504	492	476	490	656	478
Aug. 17	508	428	611	254	386	664	127	309	357	279	543	614	482	276	481	348	303	501	620	626
Aug. 18	467	647	642	608	455	659	(94)	570	207	575	408	605	267	585	245	553	653	202	647	338
Aug. 19	611	596	459	576	589	656	504	631	524	567	576	603	565	612	566	630	663	526	640	417
Mean	**531**	**524**	**525**	**447**	**476**	**659**	**228**	**490**	**383**	**432**	**541**	**608**	**471**	**442**	**479**	**488**	**545**	**479**	**653**	**488**
Departure	**+88**	**+73**	**+37**	**+17**	**+84**	**+41**	**−81**	-------	-------	**−1**	**+49**	**+79**	**−4**	**−19**	**+20**	**+24**	**+66**	**+24**	**−15**	-------
Aug. 20	576	209	160	505	600	638	368	398	553	511	448	602	631	599	612	599	586	634	663	472
Aug. 21	538	559	564	352	387	658	206	115	409	454	503	611	519	324	468	384	139	496	695	538
Aug. 22	182	349	298	495	73	648	416	252	249	303	469	633	300	412	280	354	589	303	662	482
Aug. 23	513	532	290	100	190	589	328	437	520	410	546	628	676	412	527	250	215	582	653	266
Aug. 24	565	613	498	476	153	670	(183)	557	62	432	572	611	176	423	317	491	540	194	659	272
Aug. 25	526	530	56	455	459	642	384	69	428	536	464	619	591	545	493	482	486	509	652	540
Aug. 26	491	215	142	482	509	608	210	84	432	68	382	612	584	547	486	582	525	595	649	264
Mean	**484**	**430**	**288**	**418**	**339**	**636**	**319**	**273**	**379**	**388**	**483**	**617**	**497**	**467**	**455**	**449**	**440**	**473**	**662**	**405**
Departure	**+59**	**−10**	**−184**	**+32**	**−38**	**+40**	**+29**	-------	-------	**−22**	**−44**	**+103**	**+3**	**−3**	**−18**	**0**	**−4**	**−20**	**+16**	-------
Aug. 27	524	39	418	249	622	608	321	80	528	342	302	603	632	587	522	610	397	622	633	614
Aug. 28	151	230	597	122	367	588	107	528	447	344	396	566	479	212	505	55	123	561	607	570
Aug. 29	380	361	361	484	203	564	295	492	348	219	512	610	422	138	356	202	551	347	524	183
Aug. 30	560	333	347	445	537	537	263	-------	346	446	420	560	320	406	493	455	532	484	610	606
Aug. 31	391	531	616	249	346	624	127	-------	408	115	478	434	585	336	470	327	192	537	610	583
Sept. 1	290	550	560	482	174	610	41	-------	195	355	471	424	274	184	197	194	548	220	612	375
Sept. 2	520	484	557	462	492	594	206	-------	397	418	477	472	426	517	388	524	545	428	615	548
Mean	**402**	**364**	**494**	**356**	**392**	**590**	**194**	-------	**390**	**320**	**437**	**524**	**448**	**340**	**419**	**338**	**413**	**457**	**601**	**497**
Departure	**−17**	**−44**	**+56**	**−6**	**+44**	**+19**	**−56**	-------	-------	**−56**	**−49**	**+38**	**0**	**−126**	**−12**	**−78**	**−1**	**+11**	**−19**	-------

ACCUMULATED DEPARTURES ON SEPT. 2, 1944

	−1999	**−1526**	**−8082**	-------	**−3674**	**+4433**	-------	-------	-------	**+2646**	**−3950**	-------	**+2125**	-------	**−3102**	**+435**	**+1103**	**+1972**	**−921**	-------

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS, FOR AUGUST 1944

By LUCY T. DAY

[Equatorial Division, U. S. Naval Observatory]

[Communicated by Commodore J. F. Hellweg, U. S. N. (Ret.) Superintendent, U. S. Naval Observatory. All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day, under longitude, latitude, area of spot or group, and spot count are included assumed longitude of center of the disk, assumed latitude of center of the disk, total areas of spots and groups and total spot count.]

Date	Eastern standard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate quality	Observatory
			Difference in longitude	Longitude	Latitude	Distance from center of disk				
1944	h m		°	°	°	°				
Aug. 1	11 5	.....	.....	No spots		.....	.....	.....	.....	Mt. Wilson.†
2	12 13	.....	.....	No spots		.....	.....	.....	.....	Do.†
3	11 32	.....	.....	No spots		.....	.....	.....	.....	Do.†
4	10 35	(*)	+53	49	−26	61	6	1	G	U. S. Naval.
				(356)	(+6)		6	1		
5	10 46	7655	−84	258	−12	84	145	1	G	Do.
		7655	−79	263	−11	79	73	1		
		7654	−38	304	−30	52	48	3		
		7654	−36	306	−27	50	24	4		
				(342)	(+6)		290	9		
6	9 59	7655	−67	263	−11	69	97	5	G	Mt. Wilson.
		7655	−64	266	−10	66	73	2		
		7654	−24	306	−30	43	36	11		
		7654	−21	309	−27	38	36	6		
				(330)	(+6)		242	24		
7	11 38	7655	−53	262	−11	55	48	12	G	U. S. Naval.
		7655	−50	265	−10	53	48	2		
		7654	−11	304	−31	38	24	4		
		7654	−7	308	−27	35	48	7		
				(315)	(+6)		168	25		
8	10 37	7655	−41	262	−10	45	73	11	G	Do.
		7655	−38	265	−11	43	24	5		
		7655	−37	266	−9	41	24	7		
		7654	+2	305	−31	37	36	7		
		7656	+4	307	−28	35	24	4		
				(303)	(+6)		181	34		
9	10 39	7655	−28	261	−10	33	73	14	VG	Do.
		7655	−24	265	−9	28	97	14		
		7654	+14	303	−32	41	36	12		
		7656	+17	306	−28	37	16	7		
				(289)	(+6)		222	47		
10	10 36	7655	−15	261	−10	22	36	4	F	Do.
		7655	−10	266	−9	18	97	5		
		7655	−10	266	−7	17	16	3		
		7654	+28	304	−31	47	36	7		
		7656	+34	310	−27	47	6	3		
		(*)	+37	313	−30	51	12	3		
				(276)	(+6)		203	25		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS, FOR AUGUST 1944—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate quality	Observatory
			Difference in longitude	Longitude	Latitude	Distance from center of disk				
1944	h m		°	°	°	°				
Aug. 11	10 40	7655	−2	261	−11	17	24	10	VG	U. S. Naval.
		7655	+4	267	−9	16	97	15		
		7657	+10	273	+43	38	12	3		
		7654	+42	305	−30	56	6	3		
		7656	+46	309	−27	57	4	1		
				(263)	(+6)		143	32		
12	10 42	7655	+9	259	−10	19	12	1	G	Do.
		7655	+16	266	−10	24	73	6		
				(250)	(+7)		85	7		
13	11 10	7655	+29	265	−10	33	48	4	F	Do.
		7657	+34	270	+41	47	36	1		
		7654	+65	301	−34	74	6	1		
				(236)	(+7)		90	6		
14	10 38	7658	−69	154	+7	69	6	2	F	Do.
		7655	+42	265	−10	47	24	3		
		7657	+44	267	+41	54	12	1		
				(223)	(+7)		42	6		
15	10 35	7658	−58	152	+7	58	12	4	G	Do.
		7659	+7	217	−7	16	6	1		
		7655	+56	266	−10	59	12	1		
				(210)	(+7)		30	6		
16	10 31	7658	−40	157	+7	40	36	5	G	Do.
		7659	+17	214	−10	24	48	3		
		7659	+20	217	−8	25	48	7		
		7655	+68	265	−10	70	6	1		
				(197)	(+7)		138	16		
17	10 44	7658	−28	156	+7	28	24	2	VG	Do.
		7658	−25	159	+8	25	30	6		
		7660	+5	189	−2	9	16	3		
		7660	+7	191	−3	12	12	2		
		7659	+30	214	−10	35	48	3		
		7659	+34	218	−8	37	48	9		
				(184)	(+7)		184	25		
18	10 38	7658	−11	160	+7	11	12	8	G	Do.
		7660	+9	180	−2	13	12	6		
		7660	+16	187	−3	19	6	1		
		7660	+21	192	−2	23	48	12		
		7659	+44	215	−10	47	61	5		
		7659	+48	219	−8	51	24	2		
				(171)	(+7)		163	34		
19	10 38	7658	+3	160	+7	3	6	3	G	Do.
		7660	+33	190	−3	35	6	3		
		7660	+36	193	−4	38	6	2		
		7659	+57	214	−10	60	24	1		
				(157)	(+7)		42	9		
20	11 21	7658	+15	159	+7	15	6	2	F	Do.
		7660	+46	190	−3	47	16	1		
		7660	+50	194	−4	52	24	1		
				(144)	(+7)		46	4		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS, FOR AUGUST 1944—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1944	h m		°	°	°	°				
Aug. 21	10 57	7660	+64	195	−5	65	6	1	F	U. S. Naval.
				(131)	(+7)		6	1		
22	9 7	7661	−50	69	−30	60	16	3	G	Mt. Wilson.
		(*)	−46	73	−24	55	12	3		
		(*)	−43	76	−24	51	12	1		
				(119)	(+7)		40	7		
23	10 52	7661	−40	64	−22	55	6	1	G	U. S. Naval.
		7661	−37	67	−30	51	6	1		
		7662	+60	164	+6	60	6	2		
				(104)	(+7)		18	4		
24	10 43	7663	−42	49	−22	50	24	4	G	Do.
		7661	−27	64	−32	47	12	6		
		7661	−23	68	−29	42	6	1		
				(91)	(+7)		42	11		
25	10 50	7663	−30	48	−22	42	73	1	G	Do.
		7663	−28	50	−23	41	48	1		
		7661	−9	69	−29	37	6	2		
		7664	+35	113	−25	46	12	1		
				(78)	(+7)		139	5		
26	10 57	(*)	−75	350	−20	77	6	2	G	Do.
		7663	−17	48	−22	34	61	1		
		7663	−15	50	−23	33	48	1		
				(65)	(+7)		115	4		
27	11 25	7663	−5	46	−21	29	73	6	G	Do.
		7663	0	51	−21	28	24	1		
		7665	+10	61	−30	39	24	3		
				(51)	(+7)		121	10		
28	11 16	7663	+10	48	−22	31	48	1	F	Mt. Wilson.
		7663	+13	51	−23	32	48	7		
		7665	+26	64	−32	46	24	4		
				(38)	(+7)		120	12		
29	10 46	7663	+22	47	−22	37	36	1	F	U. S. Naval.
		7663	+27	52	−21	38	48	4		
		7665	+37	62	−32	52	6	1		
		7665	+40	65	−30	53	12	2		
				(25)	(+7)		102	8		
30	10 13	7663	+35	47	−23	45	16	2	G	Do.
		7663	+40	52	−22	48	6	1		
		7665	+51	63	−31	61	6	1		
				(12)	(+7)		28	4		
31	10 45	(*)	−54	305	−28	62	6	1	G	Do.
		(*)	−52	307	+9	52	12	3		
		7663	+49	48	−23	56	6	1		
				(359)	(+7)		24	5		

Mean daily area for 31 days=98.

†Data from Mount Wilson charts.
*Not numbered.

VG=very good; G=good; F=fair; P=poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR MAY, JUNE, AND JULY, 1944

[Based on observations at Zurich except as indicated by an asterisk. Data furnished through the courtesy of Prof. W. Brunner, Swiss Federal Observatory, Zurich, Switzerland]

	Relative numbers		Relative numbers		Relative numbers
May:		May:		May:	
1	0	11	0	21	0
2	0	12	0	22	0
3	0	13	0	23	0
4	0	14	0	24	7
5	0	15	*0	25	0
6	*0	16	*0	26	0
7	*0	17	*0	27	0
8	0	18	0	28	11
9	0	19	0	29	12
10	0	20	0	30	*c* 23
				31	16

Mean, 31 days=2.2

June:		June:		June:	
1	14	11	7	21	8
2	8	12	0	22	*a* 8
3	0	13	0	23	8
4	0	14	0	24	8
5	0	15	0	25	8
6	0	16	0	26	7
7	0	17	8	27	7
8	8	18	*8	28	7
9	*7	19	8	29	0
10	8	20	8	30	0

Mean, 30 days=4.8

July:		July:		July:	
1	0	11	8	21	0
2	10	12	0	22	8
3	10	13	0	23	8
4	7	14	0	24	13
5	7	15	0	25	7
6	7	16	0	26	7
7	0	17	0	27	0
8	0	18	7	28	*c* 14
9	0	19	7	29	11
10	8	20	7	30	10
				31	0

Mean, 31 days=5.0

*=Observed at Locarno.
a=Passage of an average-sized group through the central meridian.
c=New formation of a group developing into a middle-sized or large center of activity: E, on the eastern part of the sun's disk; W, on the western part; M, in the central-circle zone.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, [redacted] August 1944

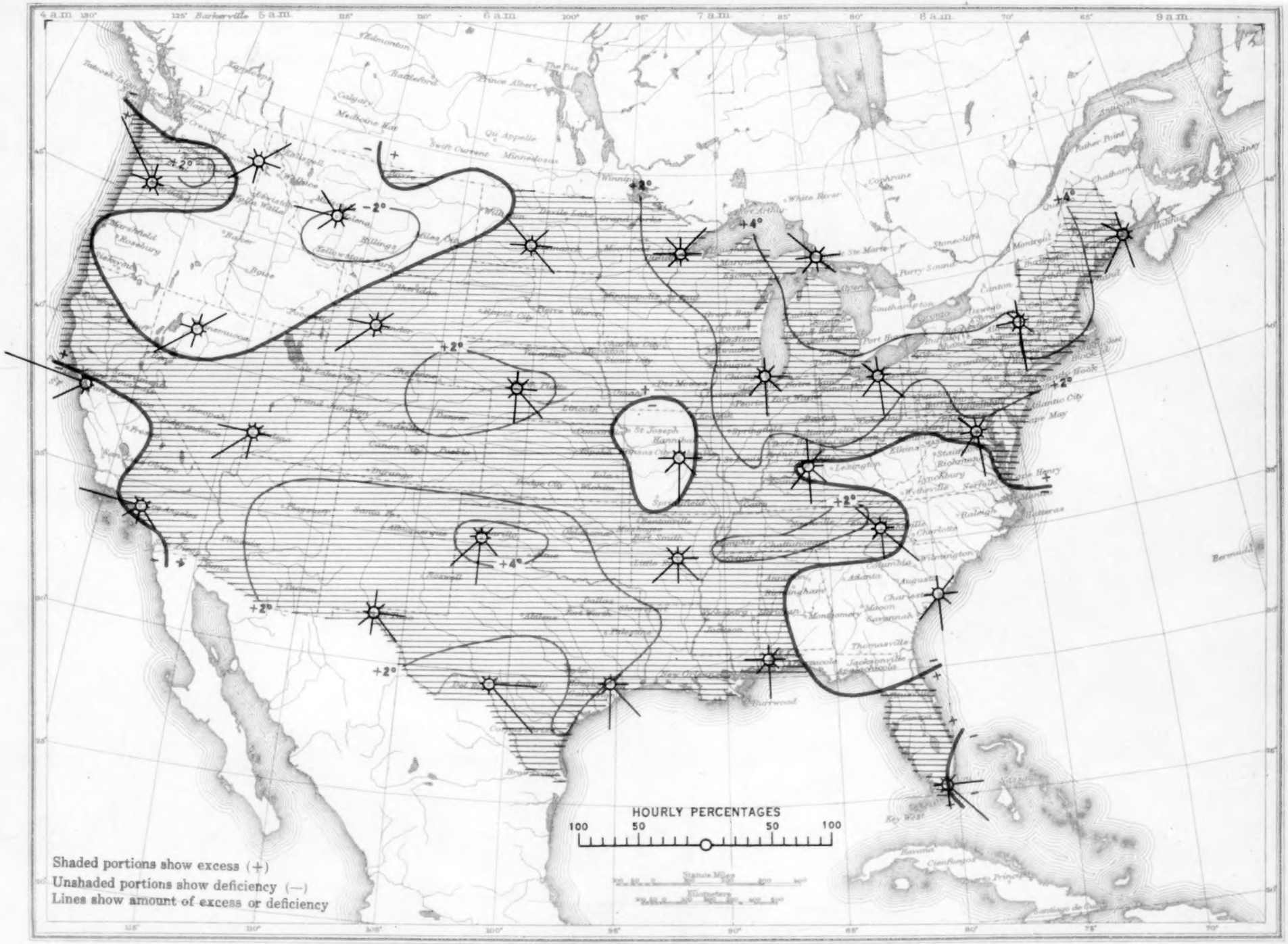
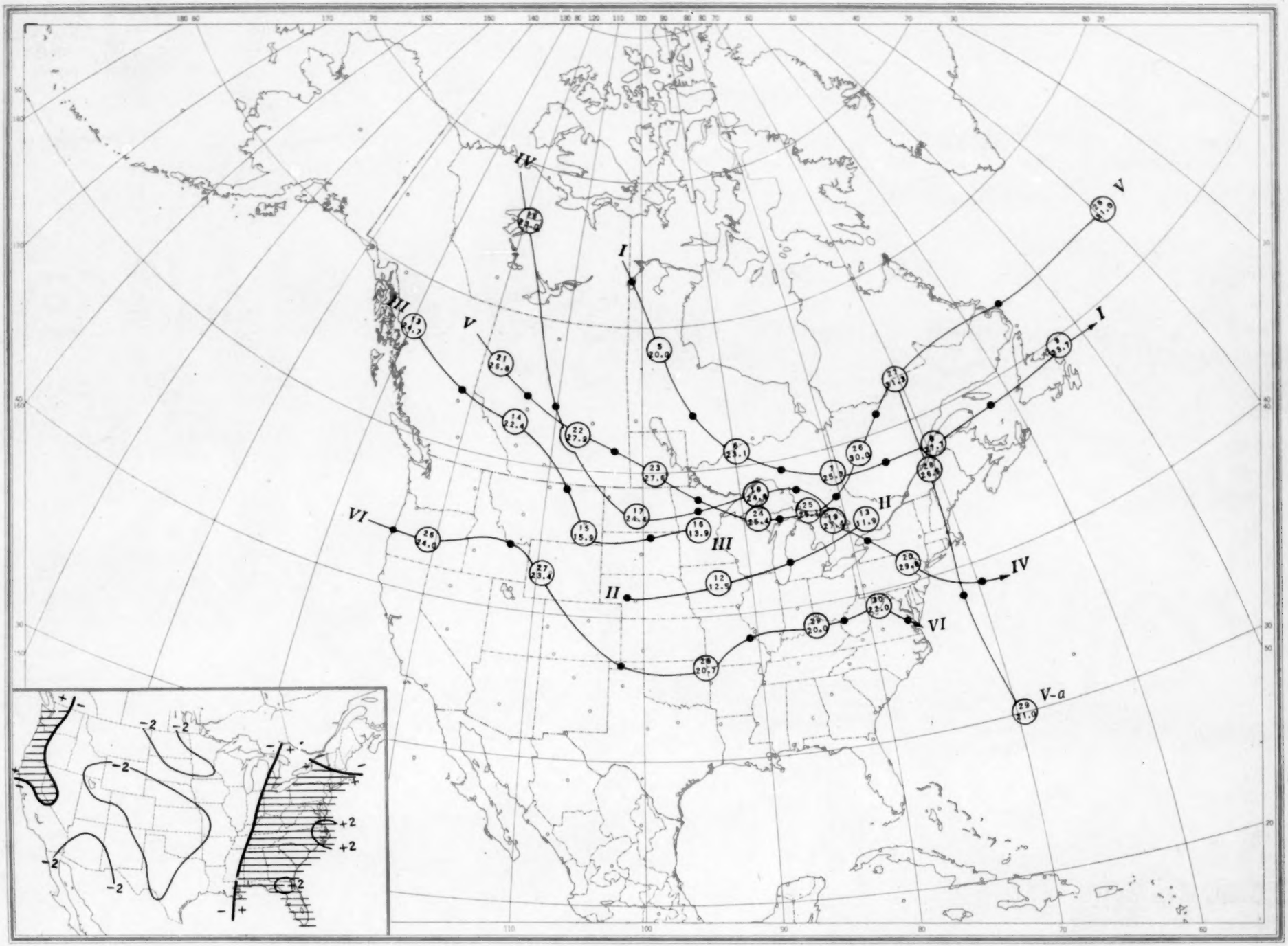

HOURLY PERCENTAGES
100 50 50 100
Shaded portions show excess (+)
Unshaded portions show deficiency (—)
Lines show amount of excess or deficiency

Chart II. Tracks of Centers of Anticyclones, August 1944. (Inset) Departure of Monthly Mean Pressure from Normal

(Plotted by A. Bloom)

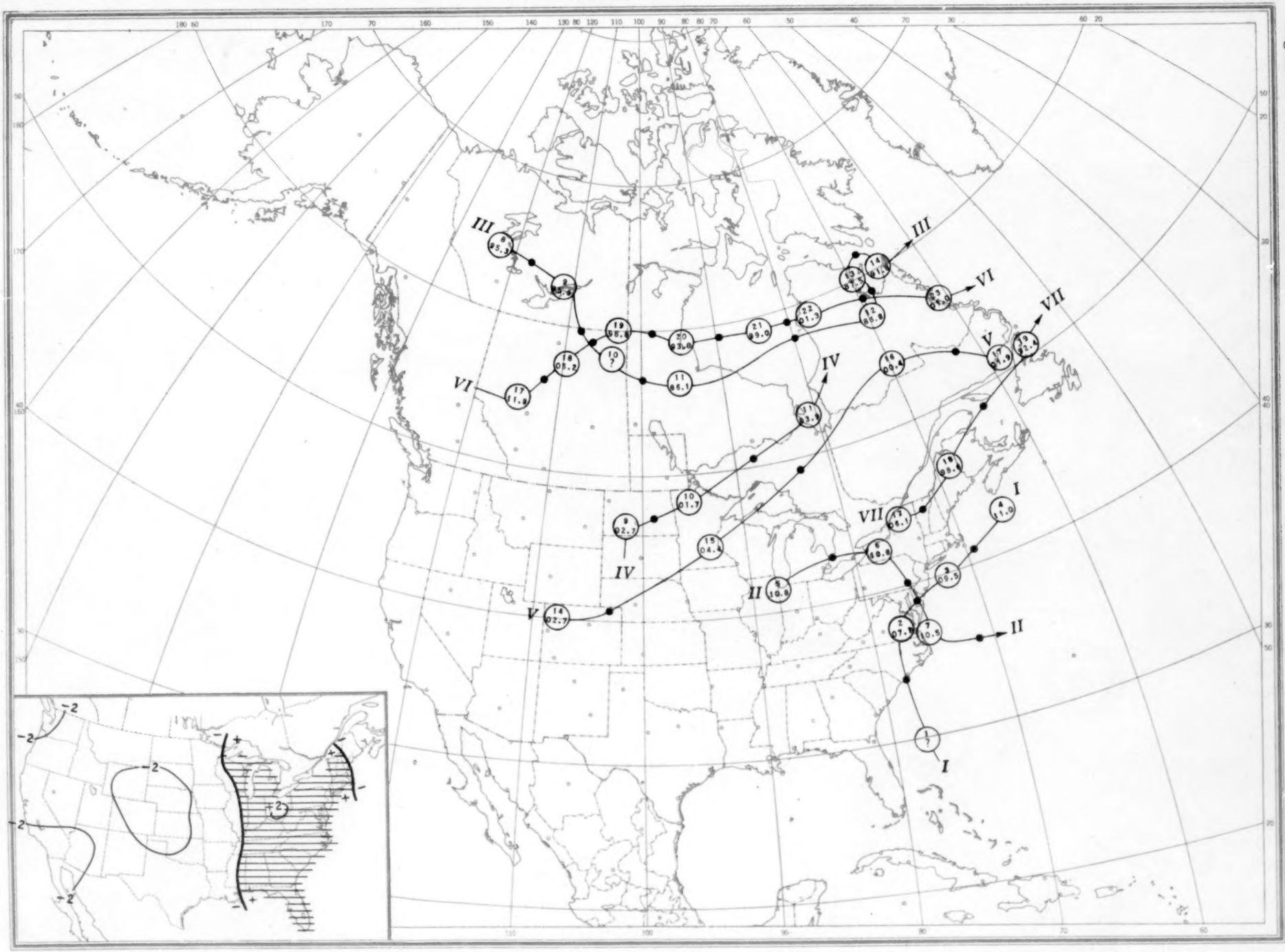


Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, August 1944. (Inset) Change in Mean Pressure from Preceding Month

(Plotted by A. Bloom)



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time).

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, [redacted] August 1944

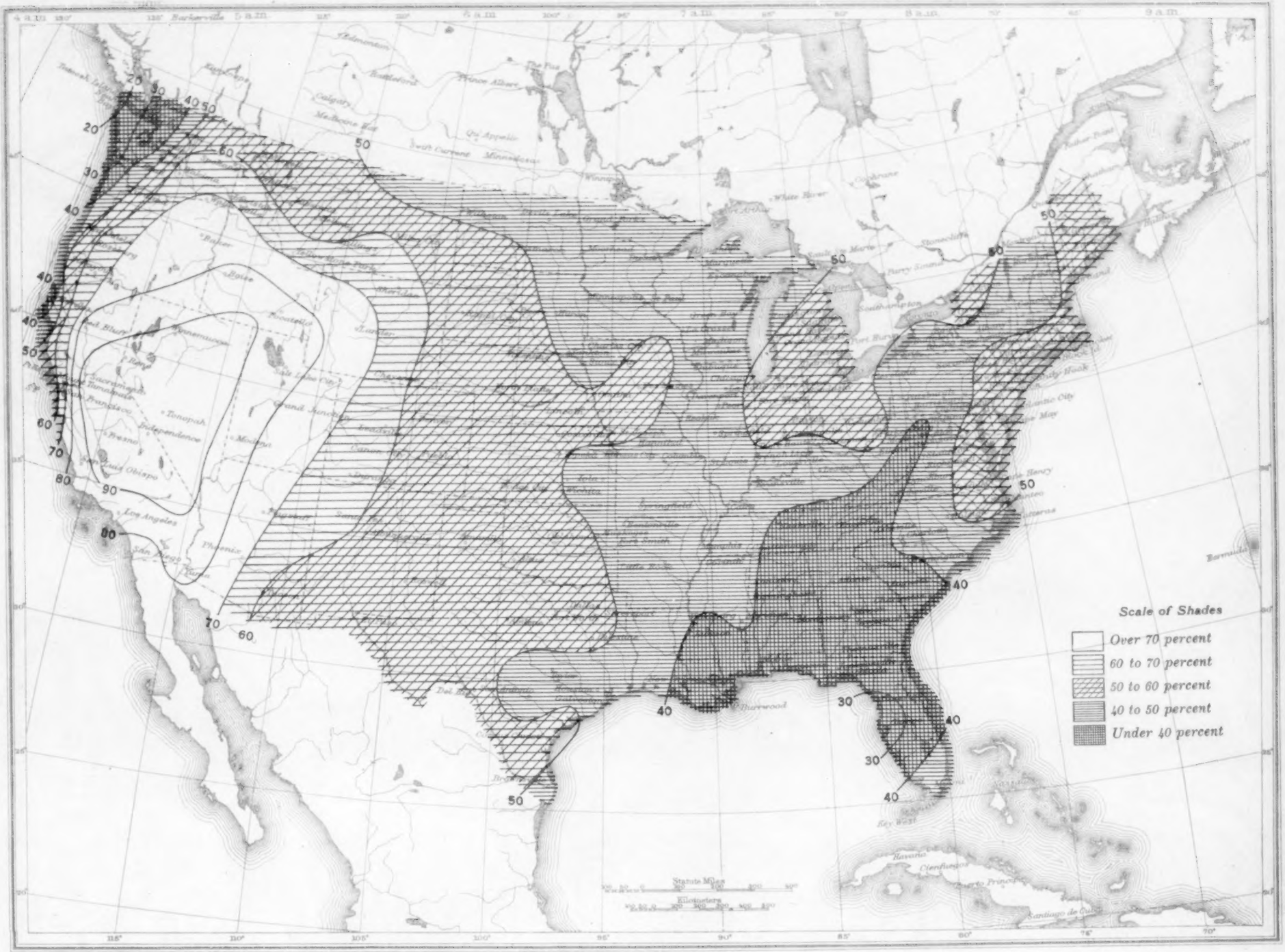


Chart V. Total Precipitation, Inches, August 1944. (Inset) Departure of Precipitation from Normal

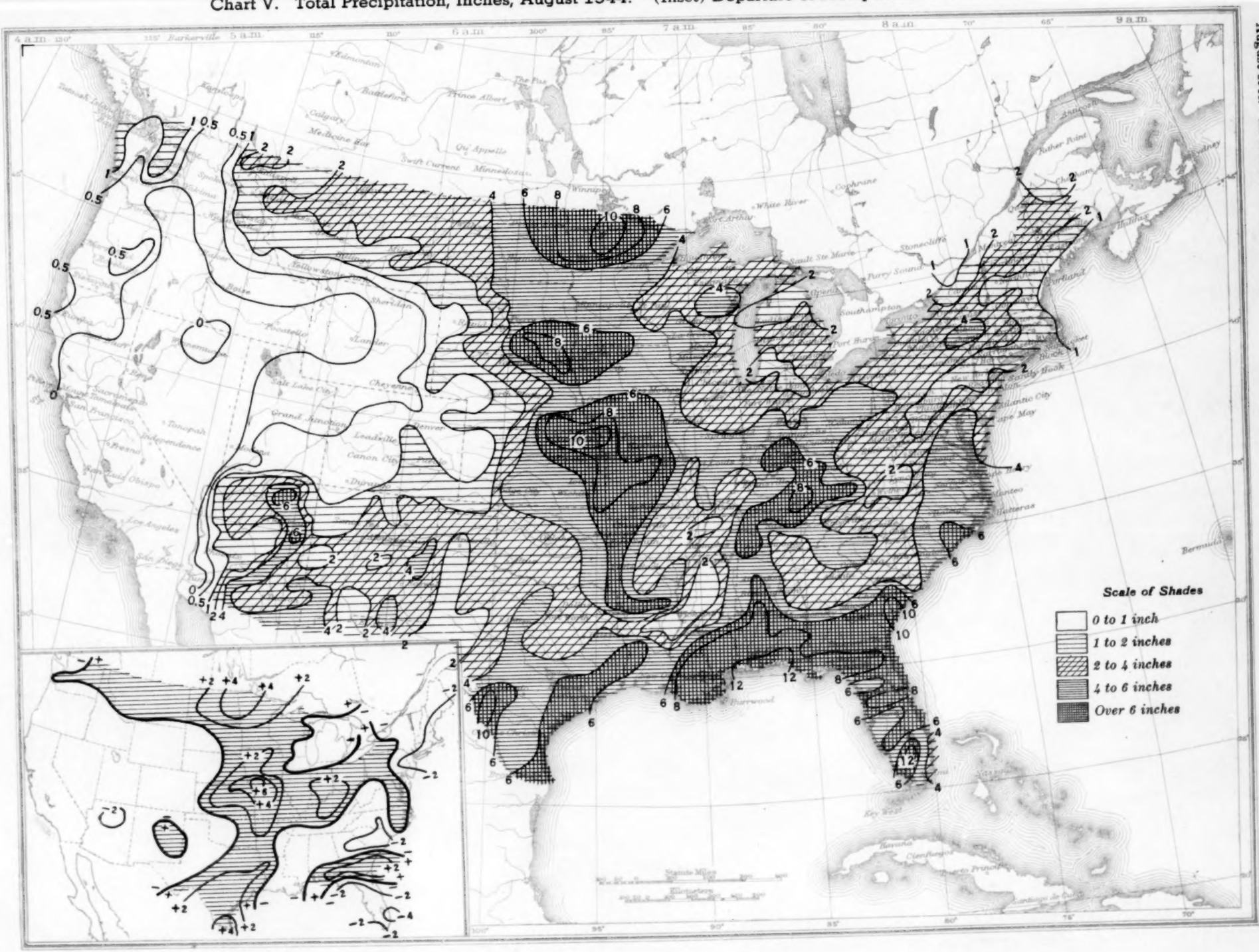


Chart VI. Isobars at Sea Level and Isotherms at Surface; Prevailing Winds, [redacted] August 1944

Mean Heights in Meters (5,000 ft.) and Isotherms (°C.) and Resultant Winds for 1,500 Meters (m. s. l.) August 1944

Chart VIII. Isobars (mb) for 1,524 Meters (5,000 ft.), and Isotherms (°C.), and Resultant Winds for 1,500 Meters (m. s. l.) August 1944

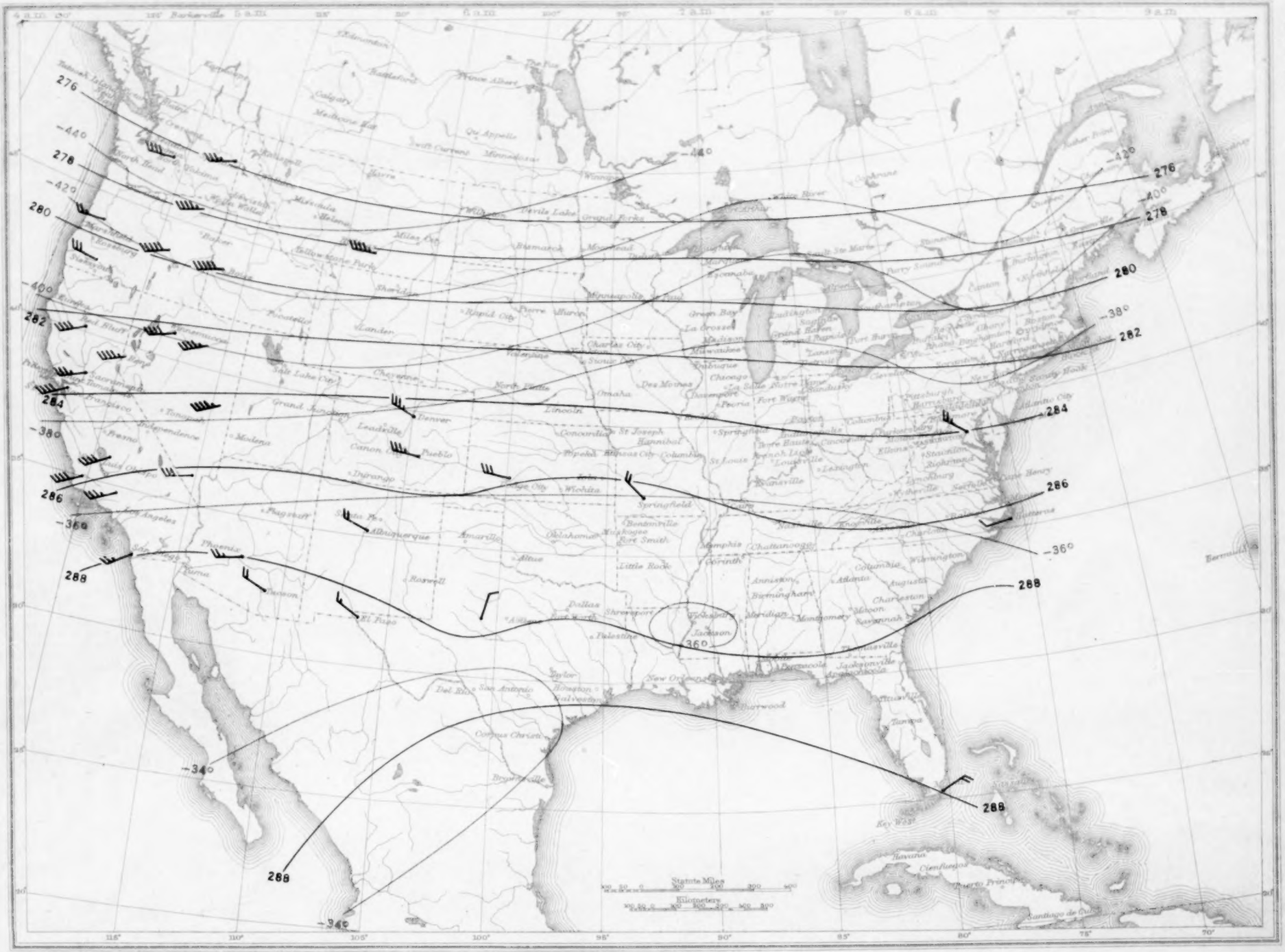
Isobars and Isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 a. m. (E. S. T.).

Chart IX. Isobars (mb), Isotherms (°C.), and Resultant Winds for 3,000 Meters (m. s. l.) August 1944

Isobars and Isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 a. m. (E. S. T.).

Chart X. Isobars (mb), Isotherms (°C.), and Resultant Winds for 5,000 Meters (m. s. l.) August 1944

Isobars and Isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 p. m. (E. S. T.).

Chart XI. Isobars (mb), Isotherms (°C.), and Resultant Winds for 10,000 Meters (m. s. l.) August 1944

Isobars and Isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 p. m. (E. S. T.).